OKLAWAHA RIVER

AQUATIC PRESERVE MANAGEMENT PLAN

1992

DEPARTMENT OF NATURAL RESOURCES

OKLAHAWA RIVER AQUATIC PRESERVE

MANAGEMENT PLAN

(CABINET READY DRAFT)

MARCH 1992

VIRGINIA WETHERELL

Executive Director

Department of Natural Resources

This plan was prepared by the
Bureau of Submerged Lands and Preserves
Division of State Lands

Funds for this management plan were provided by the Department of Environmental Regulation, Office of Coastal Management using funds made available through the National Oceanic and Atmospheric Administration under the Coastal Zone Management Act of 1972, as amended.

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES

LIST OF APPENDICES

Copies of the legal description of the Oklawaha River Aquatic Preserve, as well as copies of Chapter 253 and 258, F.S., and Chapter 18-21, F.A.C., may be obtained from:

Bureau of Submerged Lands and Preserves
Department of Natural Resources
3900 Commonwealth Boulevard
Mail Station 125
Tallahassee, Florida 32399-3000

CHAPTER I

INTRODUCTION

The Oklawaha River Aquatic Preserve is located in Marion County. The preserve was designated by legislative action on October 1, 1989. The Oklawaha River Aquatic Preserve encompasses approximately 20 miles of the middle reach of the Oklawaha River and the entire Silver River. The Oklawaha River Aquatic Preserve is approximately 4600 acres in size. The Silver River was designated an Outstanding Florida Water (OFW) in 1987, and the Oklawaha River reach within the Aquatic Preserve was designated an OFW in October 1989. Figure 1 indicates the location of all aquatic preserves in Florida and Figure 2 indicates the location and approximate boundary of the Oklawaha River Aquatic Preserve boundaries.

The Oklawaha River is one of the principal rivers of Florida, and it is the largest tributary of the St. Johns River. The Oklawaha River itself is located almost entirely within Marion County with its headwaters located in the Oklawaha Chain of Lakes in Lake County, which includes Lake Apopka, Lake Harris, Lake Eustis, Lake Dora, Lake Yale, and Lake Griffin. The Palatlakaha River contributes flow into the Oklawaha Basin and is also considered a headwater area. From Lake Griffin, the Oklawaha River flows northward approximately 70 miles to its confluence with the St. Johns River near Welaka.

After leaving Lake Griffin, the Oklawaha River receives water from several creeks and springs along its path. The largest tributary of the Oklawaha River is the Silver River. During periods of low rainfall the Oklawaha River below the Silver River receives much of its flow from the Silver River. Silver Springs, the headsprings of the Silver River, has an average discharge of 550 million gallons per day and accounts for about 50 percent of the Oklawaha River's flow at the confluence of the Oklawaha and Silver rivers (USDA Forest Service, 1973).

The Oklawaha River is an exceptional ecological and recreational resource. The Oklawaha River system, including the Silver River, is a very diverse and productive ecosystem. The ecological richness of the Oklawaha valley is due in part to the change in character of the river along its length. As the river flows from its headwaters in the Oklawaha chain of lakes to its confluence with the St. Johns River, changes in topography and hydrology create several distinct habitats within the river valley. Cutting through scrub, sandhills, and flatwoods, the Oklawaha River system serves as a vital connection between upland and aquatic nutrient cycles and temperate and subtropical wildlife communities.

Blackwater rivers such as the Oklawaha, clear spring runs such as the Silver River, and the swamps that line their banks are important features of Florida's landscapes. The swamps are fed by nutrients washed in during highwater, and are shaped by the moving water that builds levees along the riverbanks and carves channels

through them. Trees and understory plants support a large and varied food web. The mast and seeds that are produced in the forests along the river banks make them preferred habitat for many species of large mammals, and the rich variety of leaf types supports an insect population which attracts a wide array of migrating and resident birds. For these reasons the Oklawaha River valley has a much higher plant and animal diversity than do the surrounding uplands.

The Oklawaha River reach within the aquatic preserve, along with the seven mile river segment downstream of Rodman Dam to the St. Johns River, represent the areas of the Oklawaha River valley least affected by the activities of man. Almost all of the Oklawaha River valley within the aquatic preserve is in public ownership and is largely undeveloped. The Silver River State Park and the State of Florida Canal Authority lands account for most of the land surrounding the Silver River. The remaining lands in private ownership, including Silver Springs, along the Silver River are presently under consideration as a State of Florida Conservation and Recreation Lands (CARL) acquisition. With the exception of the developed attraction at the headwater springs, the length of the Silver River is undeveloped.

Development and implementation of a management plan for the Oklawaha River Aquatic Preserve will help insure the protection, proper management, and continued value of this area as an ecological and recreational resource. This management plan examines the resource contained within the designated preserve boundaries and suggests management issues and needs to further proper management and stewardship of this resource. As additional information concerning this resource becomes known, and as regulations affecting this preserve are implemented or revised, this plan will require revision to reflect those changes. As with any management plan, monitoring of plan implementation will be necessary to determine if the plan is adequately addressing the management issues and concerns.

This management plan will be incorporated into the existing aquatic preserve rule - Chapter 18-20 Florida Administrative Code - following its approval by the Governor and Cabinet sitting as the Board of Trustees of the Internal Improvement Trust Fund. The Board of Trustees of the Internal Improvement Trust Fund has been legislatively delegated statutory authority to exercise proprietary control over state-owned lands. Upon incorporation into rule, this management plan will have the same authority as current rule criteria.

This plan is divided into the following sections by management application:

Chapter II - cites the specific statutory authority upon which the resource management program for aquatic preserves in based;

Chapter III - description of the physical and biological components, and resource values of the Oklawaha River Aquatic Preserve. This

section contains an overview of the land use of the associated uplands of the preserve and the associated impacts of these uses;

Chapter IV - delineation of the management areas within the preserve;

Chapter V - determination of the site specific management issues and needs;

Chapter VI - outline of the goals and objectives of the management plan and the tasks necessary to implement the plan;

Chapter VII - identification of the federal, state, regional, and local agencies that have regulatory authority relating to the preserve and their relationship to the management and protection of the preserve. This chapter also identifies the special interest groups, organizations, and individuals that have no regulatory authority over the preserve, but that do have an interest in the preserve;

Chapter VIII - estimation of the staffing and fiscal needs to implement the management plan and provide effective management of the plan;

Chapter IX - suggested monitoring program to record and report changes within the preserve, and establishes a system for determining the effectiveness of the plan.

FIGURE 1 Aquatic Preserves in Florida

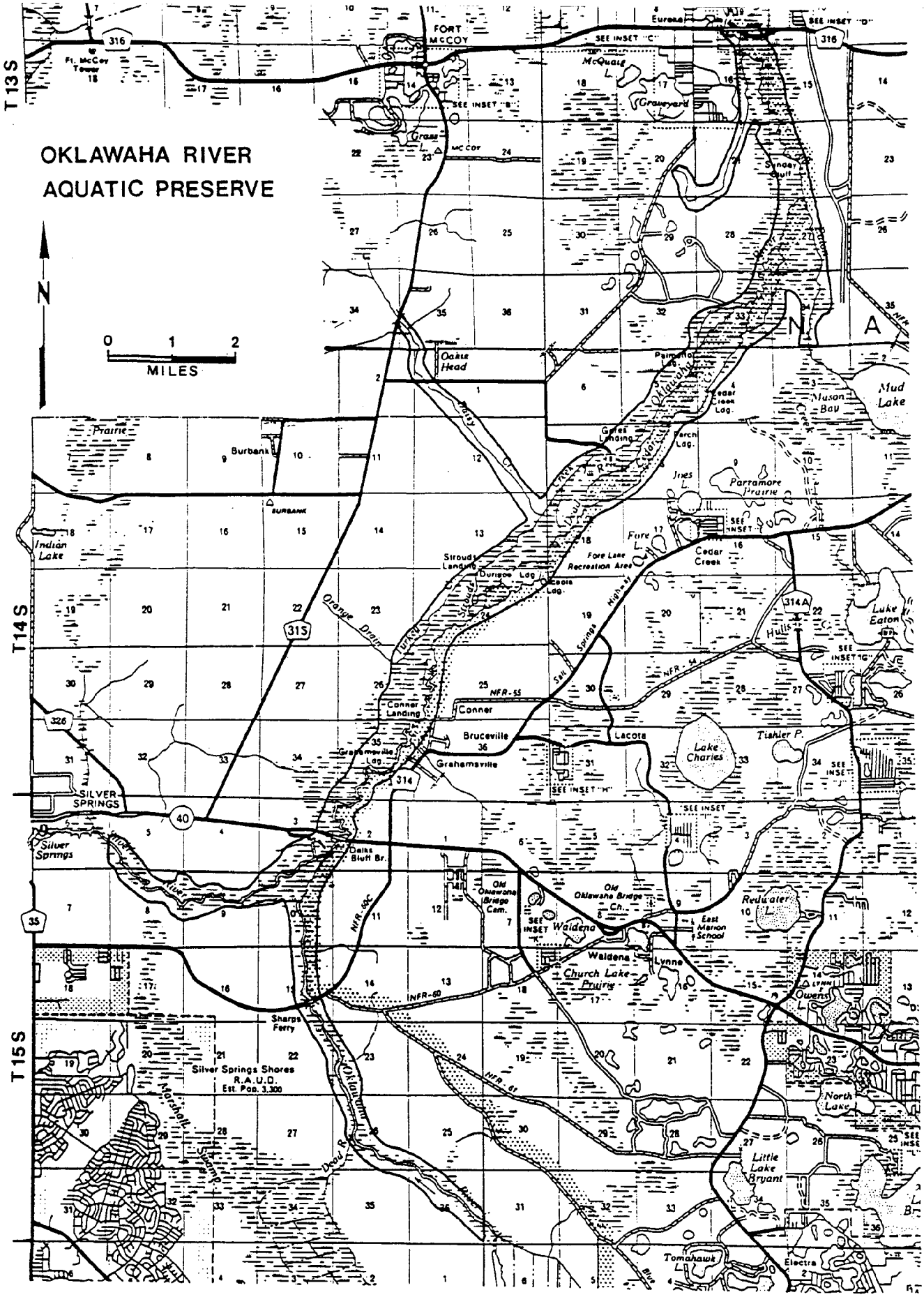

FIGURE 2 Oklawaha River Aquatic Preserve Boundary

CHAPTER II

MANAGEMENT AUTHORITY

A. Statutory Authority

The fundamental laws providing management authority for the Oklawaha River Aquatic Preserve are contained in Chapters 258 and 253, Florida Statutes (F.S.). These statutes establish the proprietary role of the Governor and Cabinet, sitting as the Board of Trustees of the Internal Improvement Trust Fund, as Trustees over all sovereign submerged lands. In addition, these statutes empower the Trustees to adopt and enforce rules and regulations for managing all sovereign submerged lands, including aquatic preserves.

In particular, Sections 258.35-258.46, F.S., enacted in 1975 by the Florida Legislature, represent the **Florida Aquatic Preserve Act**. These statutes set forth a standardized set of management criteria for all designated aquatic preserves, and represent the primary laws governing use of sovereign submerged lands within aquatic preserves.

The Legislative intent for establishing aquatic preserves is stated in Section 258.36, F.S.: "**It is the intent of the Legislature that the state-owned submerged lands in areas which have exceptional biological, aesthetic, and scientific value, as hereinafter described, be set aside forever as aquatic preserves or sanctuaries for the benefit of future generations.**" This statement along with the other applicable laws clearly mark the direction for management of aquatic preserves. Management will emphasize the maintenance of essentially natural conditions, and will include only sovereign or state-owned submerged lands and lands leased by the State and specifically authorized for inclusion as part of a preserve.

Management responsibilities for aquatic preserves may be fulfilled directly by the Board of Trustees or by staff of the Division of State Lands of the Department of Natural Resources through delegation of authority. Other governmental bodies may also participate in the management of aquatic preserves under appropriate instruments of authority issued by the Board of Trustees. The Division staff serve as the primary managers who implement provisions of the management plans and rules applicable to the aquatic preserves. Staff evaluate proposed uses or activities in the preserve, and assess the possible impacts on the natural resources. Project reviews are primarily evaluated in accordance with the criteria in Sections 258.35-46, F.S. (Florida Aquatic Preserves Act), Chapter 18-20, Florida Administrative Code (Rules of Florida Aquatic Preserves), and in accordance with the policies set forth in this plan.

Staff comments on proposed uses are submitted for consideration in developing recommendations to be presented to the Board of Trustees. This mechanism provides a basis for the Board of Trustees to evaluate public interest and the merits of any project while also considering potential environmental impacts upon the aquatic preserves. Any activity located on sovereign submerged lands will require a consent of use, a lease or easement, or other approval from the Board of Trustees. Consent of use may be granted on small projects from the Division of State Lands in accordance with the authority delegated by the Board.

Background

The laws supporting aquatic preserve management are the direct result of the public's awareness of and interest in protecting Florida's aquatic environment. The rampant dredge and fill activities that occurred in the late 1960's spawned this widespread public concern.

In 1967, the Florida Legislature passed the Randall Act (Chapter 67-393, Laws of Florida), which established procedures regulating previously unrestricted dredge and fill activities on state-owned submerged lands. That same year, the legislature provided the statutory authority (Section 253.03, F.S.) for the Board of Trustees to exercise proprietary control over state-owned lands. Also, in 1967, government focus on protecting Florida's productive water bodies from degradation due to development led the Board of Trustees to establish a moratorium on the sale of submerged lands to private interests. That same year, an Interagency Advisory Committee (IAC) was created to develop strategies for the protection and management of state-owned submerged lands.

In 1968, the Florida Constitution was revised to declare in Article II, Section 7, the state's policy of conserving and protecting natural resources and areas of scenic beauty. That constitutional provision also established the authority for the legislature to enact measures for the abatement of air and water pollution. Later that same year, the IAC issued a report recommending the establishment of twenty-six aquatic preserves.

On October 21, 1969, the Governor and Cabinet acted upon the recommendations of the IAC and adopted, by resolution, eighteen of the water bodies as aquatic preserves. Other preserves were individually adopted at subsequent times up through 1989. The Oklawaha River Aquatic Preserve was officially designated on October 1, 1989.

B. Administrative Rules Governing Aquatic Preserves

Chapters 18-20 and 18-21, Florida Administrative Code (F.A.C.), are the two administrative rules directly applicable to the uses allowed in aquatic preserves specifically, and submerged lands in general. The general rules in Chapter 18-20,

F.A.C., are supplemental to the rules in Chapter 18-21, F.A.C, in the regulation of activities in aquatic preserves.

1. CHAPTER 18-20, F.A.C.

Chapter 18-20, F.A.C., specifically addresses aquatic preserves and derives its authority from Sections 258.35, 258.36, 258.37, and 258.38, F.S. The intent of this rule is contained in Section 18-20.001, F.A.C., which states:

"(1) All sovereignty lands within a preserve shall be managed primarily for the maintenance of essentially natural conditions, the propagation of fish and wildlife, and public recreation including hunting and fishing where deemed appropriate by the board and the managing agency.

(2) The aquatic preserves which are described in Chapter 73-534, Laws of Florida, Sections 258.39, 258.391, 258.392, and 258.393, Florida Statutes, future aquatic preserves established pursuant to general or special acts of the legislature, and in Rule 18-20.002, Florida Administrative Code, were established for the purpose of being preserved in essentially natural or existing condition so that their aesthetic, biological and scientific values may endure for the enjoyment of future generations.

(3) The preserves shall be administered and managed in accordance with the following goals:

(a) to preserve, protect, and enhance these exceptional areas of sovereignty submerged lands by reasonable regulation of human activity within the preserves through the development and implementation of a comprehensive management program;

(b) to protect and enhance the waters of the preserves so that the public may continue to enjoy the traditional recreational uses of those waters such as swimming, boating, and fishing;

(c) to coordinate with federal, state, and local agencies to aid in carrying out the intent of the Legislature in creating the preserves;

(d) to use applicable federal, state, and local management programs, which are compatible with the intent and provisions of the act and these rules, and to assist in managing the preserves;

(e) to encourage the protection, enhancement, or restoration of the biological, aesthetic, or scientific values of the preserves, including but not limited to the modification of existing man-made conditions towards their natural condition, and discourage activities which would degrade the aesthetic, biological, or scientific values, or the quality, or utility of a preserve, when reviewing applications, or when developing and implementing management plans for the preserves;

(f) to preserve, promote, and utilize indigenous life forms and habitats, including but not limited to: sponges, soft coral, hard corals, submerged grasses, mangroves, saltwater marshes, freshwater marshes, mud flats, estuarine, aquatic and marine reptiles, game and non-game fish species, estuarine, aquatic, and marine invertebrates, estuarine, aquatic, and marine mammals, birds, shellfish and mollusks;

(g) to acquire additional title interests in lands wherever such acquisitions would serve to protect or enhance the biological, aesthetic, or scientific values of the preserve;

(h) to maintain those beneficial hydrologic and biologic functions, the benefits of which accrue to the public at large."

2. CHAPTER 18-21, F.A.C.

Chapter 18-21, F.A.C., controls activities conducted on sovereignty submerged lands in general and is predicated on the provisions of Sections 253.03, and 253.12, F.S. The stated intent of this administrative rule is:

"(1) to aid in fulfilling the trust and fiduciary responsibilities of the Board of Trustees of the Internal Improvement Trust Fund for the administration, management, and disposition of sovereignty lands;

(2) to insure maximum benefit and use of sovereignty lands for all citizens of Florida;

(3) to manage, protect, and enhance sovereignty lands so that the public may continue to enjoy traditional uses including, but not limited to, navigation, fishing and swimming;

(4) to manage and provide maximum protection for all sovereignty lands, especially those important to public drinking water supply, shellfish harvesting, public recreation, and fish and wildlife propagation and management;

(5) to insure that all public and private activities on sovereignty lands which generate revenues or exclude traditional public uses provide just compensation for such privileges;

(6) to aid in the implementation of the State Lands Management Plan."

C. Relationship to Other Applicable Plans and Programs

The State Comprehensive Plan, established by Chapter 187, F.S., provides long-range policy guidance for the orderly social, economic and physical growth of the State. As such, the State Comprehensive Plan provides direction for the management of the physical resources within the state. The goals, objectives and policies set forth in this aquatic preserve management plan are designed to be consistent with those in the State Comprehensive Plan that pertain to the water resources, coastal and marine resources and natural systems.

The Conceptual State Lands Management Plan, adopted on March 17, 1981, and amended by the Board of Trustees on July 7, 1981 and March 15, 1983, contains specific policies concerning spoil islands, submerged land leases, "Outstanding Native Florida Landscapes," unique natural features, seagrass beds, archaeological and historical resources, and endangered species. These policies provide some of the fundamental direction for formulating management plans and policies of the Aquatic Preserves Program.

The Local Government Comprehensive Plan (LGCP) for Marion County is required by the Local Government Comprehensive Planning and Land Development Regulation Act to have a comprehensive growth management plan with elements relating to different governmental functions (e.g., housing, physical facilities, conservation, land use, coastal zone protection, etc.) Each plan, in effect, is intended to guide the future development of each respective county. Cities and counties are to adopt land development regulations and conform to the criteria, policies, and practices of their comprehensive plans, which must be updated periodically as required by recent statutory amendments.

The intent of the Aquatic Preserve Program is to guide county governments during their planning process towards developing local planning criteria and standards that will be consistent with the objectives of the program. Marion county's LGCP has been adopted and submitted to the State of Florida Department of Community Affairs for compliance review. The land development regulations designed to implement Marion County's Comprehensive Plan are to be adopted by May 1, 1992.

As stated in the Introduction, the Silver River and the portion of the Oklawaha River within the aquatic preserve have been designated Outstanding Florida Waters (OFW). An OFW designation provides a waterbody with the highest degree of

water quality protection under Florida Department of Environmental Regulation rules. In general, any regulated activity that would the degrade ambient water quality in an OFW will not be permitted.

The St. Johns River Water Management District has developed The Upper Oklawaha River Basin SWIM plan to address efforts to restore, enhance, and protect the headwaters and upper reaches of the Oklawaha River. The Upper Oklawaha River Basin SWIM area overlaps the Oklawaha River Aquatic Preserve form the southern boundary of the preserve to State Road 40. One of the objectives of the UORB SWIM plan is to improve the water quality in the Oklawaha basin.

CHAPTER III

DESCRIPTION OF THE AQUATIC PRESERVE

A. Location and Boundary

The Oklawaha River Aquatic Preserve is located in Marion County, Florida. It extends approximately 20 miles along the middle reach of the Oklawaha River and the Silver River from its confluence with the Oklawaha upstream approximately three miles (Figure 2, page 7). The specific boundary of the Oklawaha River Aquatic Preserve is as follows:

> The Oklawaha River Aquatic Preserve shall consist of those state-owned sovereignty submerged lands lying below the ordinary high water line of said land, located in Marion County. The preserve is more specifically described as: Begin at the intersection of the southerly right-of-way of county road 316 and the westerly ordinary high water line of the Oklawaha River, located in Section 9, Township 13 South, Range 24 East. Thence from said point of beginning proceed southerly along the ordinary high water line of the Oklawaha River and its tributaries to its intersection with the eastern line of Section 36, Township 15 South, Range 23 East. Thence proceed northerly along said Section Line to its intersection with the easterly ordinary high water line of the Oklawaha River. Thence proceed northerly along said ordinary high water line to its intersection with the southerly right-of-way of county road 316. Thence proceed west along said road to the point of beginning; including Eaton Creek upstream to the northern line of Section 3, Township 14 South, Range 24 East, Daisy Creek upstream to county road 315, Silver River upstream to the western line of Section 5, Township 15 South, Range 23 East. Less and except Dead River and Orange Drain.

The Oklawaha River Aquatic Preserve encompasses approximately 4600 acres. The majority of the land immediately adjacent to the state sovereign lands within the aquatic preserve is in public ownership. The State of Florida Canal Authority land encompasses most of the land on both the east and west side of the preserve between the ordinary high water line and the take line for the Cross Florida Barge Canal Project which is now deauthorized. The Canal lands are now part of the Cross Florida Greenbelt State Recreation and Conservation Area. The Ocala National Forest lies along the entire eastern boundary of the aquatic preserve landward of the Conservation and Recreation Area. There are numerous inholdings of private ownership between the Canal lands and the Ocala National Forest. The land on either side of the Silver River is within the Silver River State Park for the entire length of the Silver River within the aquatic preserve.

Much of the Oklawaha River Aquatic Preserve is within the Department of Natural Resources (DNR) Greenline Area surrounding the Silver River State Park. Figure 3 illustrates the Greenline Area that has been developed for the Silver River State Park.

B. Physiography

The Oklawaha River Valley follows a well defined course with a wide floodplain. The stream bed of the Oklawaha is strongly influenced by a well-developed series of joints in the underlying rock. The Oklawaha is an old river, and has carved out a mile-wide floodplain through which it twists and turns. Sediments of the Oklawaha River floodplain are largely non-clastic in nature. The floodplain is largely composed of organic sediments such as peats and mucks.

The Silver River also exhibits a wide, well-defined floodplain largely composed of organic mucks and peats. The Silver River stream bed contains numerous limestone outcroppings and springs near its headwater springs and along its length.

The physiographic divisions of the Oklawaha River Valley were described and summarized in Environmental Impact of the Cross Florida Barge Canal with Special Emphasis on the Oklawaha River Ecosystem produced by the Florida Defenders of the Environment, 1970. This summary describes the unique physiographic feature of the Oklawaha River valley which is the freshwater marl that makes up the major portion of the floodplain.

The Oklawaha drainage basin is approximately 2800 square miles and covers parts of Alachua, Lake, Marion, Putnam, and Orange counties (USDA Forest Service, 1973). The headwaters of the Oklawaha come from surface water from the overflow of several lakes located in the Oklawaha Chain of Lakes in Lake County, which includes Lake Apopka, Lake Harris, Lake Eustis, Lake Dora, Lake Yale, and Lake Griffin. The Palatlakaha River Basin in Lake and Polk Counties is a tributary to the Oklawaha Chain of Lakes. From Lake Griffin, the Oklawaha River flows northward approximately 70 miles to its confluence with the St. Johns River near Welaka.

The Florida Natural Areas Inventory describes blackwater streams such as the Oklawaha and spring run streams such as the Silver River as follows:

Blackwater Stream - a perennial or seasonal watercourse characterized by tea-colored water with high particulate and dissolved organic matter content. Generally lacking an alluvial floodplain.

Spring-run Stream - a perennial watercourse with deep aquifer headwaters; characterized by clear water, approximately neutral pH and frequently a solid limestone bottom.

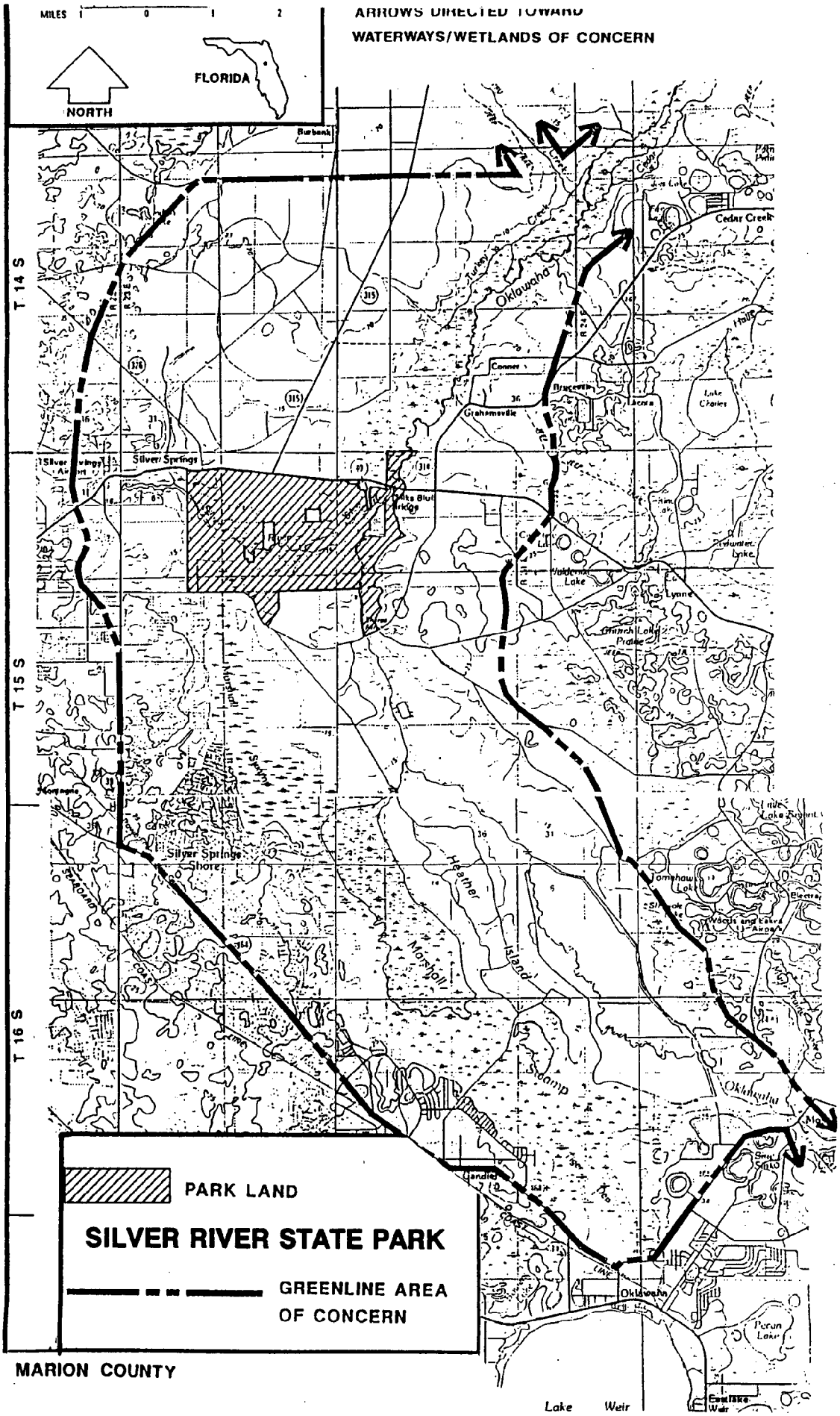

FIGURE 3 Silver River State Park

C. Geology

Ocala Limestone underlies all of the Oklawaha Basin area. In some places it is covered by clayey deposits that impede the downward movement of water. In other areas it is overlain by sands and gravels or a combination of materials. The top of the underlying limestone is highly irregular due to karst dissolution. In some places it is overlain by 100 feet or more of various clastic sediments. In other places it outcrops as it does along the east bank of the Oklawaha River.

D. Hydrology

The Oklawaha River is the largest tributary of the St. Johns River and the Silver River is the largest tributary of the Oklawaha. After leaving Lake Griffin, the Oklawaha River receives water from several creeks and springs along its path. River flow is seasonal and varies with rainfall, particularly upstream from the Silver River. The flow in the upper Oklawaha River is partly regulated by water control structures in the upper Oklawaha River and the Oklawaha Chain of Lakes.

The major factors influencing the hydrology of the Oklawaha River Valley are the relatively high annual rainfall and the permeable karst limestone terrain. The entire region is underlain by the Floridan aquifer system. Large quantities of groundwater are freely discharged from the aquifer. It is estimated that over half of the flow of the Oklawaha comes from this limestone aquifer (USDA Forest Service, 1973).

The Oklawaha receives a large inflow from the Floridan aquifer system through Silver Springs and the Silver River. The average daily discharge of Silver Springs is approximately 550 million gallons per day. Some 20 additional springs of various sizes have been located in the Oklawaha Valley between Silver Run and Rodman Reservoir, and several of these springs are within the aquatic preserve boundaries. Twenty miles north of Silver Run, the Oklawaha is joined by the small tributary of Orange Creek which, in turn, flows out of Orange Lake and Lochloosa Lake.

E. Water Quality

The water of the Oklawaha River is highly enriched with nutrients and darkly stained by tannins and organic substances. The tannins and organic substances are washed from the river's floodplains. The river's high nutrient concentrations come from the eutrophic lakes in its upper basin and from the naturally occurring nutrient inputs from the Silver River and the associated floodplains of both rivers. The Silver River is a spring-fed river and exhibits very good water quality and clarity.

The overall water quality of the Oklawaha River and Silver River has been found to be good and to meet its designated uses (Florida Department of Environmental Regulation, 1990 Florida Water Quality Assessment 305(b) Technical Appendix).

The Oklawaha River and the Silver River have been designated Class III Waters. Class III Water designation is for recreation and the propagation and maintenance of a healthy, well balanced population of fish and wildlife.

The 305(b) Technical Appendix states that the Oklawaha Basin has the distinction of having some of the most pristine lake and river reaches within the State of Florida as well as some of the most polluted. Lake Apopka has the worst pollution problem in the southern half of the Oklawaha Basin. The 305(b) Technical Appendix lists the Silver River as one of three water bodies having the best water quality within the entire Oklawaha River Basin. Water quality for the Oklawaha River reaches within the aquatic preserve boundaries ranged from fair to good for the reaches listed in the 305(b) Technical Appendix.

Steps are being taken to improve water quality in the upper Oklawaha Basin and the upper reaches of the Oklawaha River. Lake County has implemented sewage effluent control policies and is monitoring the water quality of the Oklawaha Chain of Lakes. Many of the point sources of pollution in the Oklawaha Chain of Lakes have either been eliminated or improved. Feasibility studies for the restoration of Lake Apopka are being conducted by the St. Johns River Water Management District. The District has acquired and converted several thousand acres of agricultural land adjacent to Lake Apopka to a flow-through marsh area. By allowing lake water to circulate through this marsh area, the nutrients will be reduced and water clarity improved as suspended materials settle out of the water into marsh. Assimilation of nutrients by aquatic plants may also contribute to the improved water quality but is not expected to be the primary mechanism.

The District has also acquired two large agricultural areas along the upper reaches of the Oklawaha River upstream from the southern boundary of the preserve. District control of these areas will lessen the effects of stormwater and agricultural runoff into the Oklawaha River system. However, high Biochemical Oxygen Demand (BOD) levels and high nutrient loading still occur in the headwater lakes of the Oklawaha River due to agricultural activities on the large muck farms adjacent to the lakes. All of these actions will have effects upon the downstream water quality within the Oklawaha system.

F. Archaeological and Historical Resource

The Oklawaha River has long been used by man as a travel corridor and for fishing, hunting, and foraging. Human habitation of the Oklawaha River Basin dates back to 1500 B.C. when Indians established camps along the river. The name "Oklawaha" comes from the Indian word "Okli-Waha" which means "great river" (Bigelow, 1970). There are shell mounds and middens along the Oklawaha and Silver Rivers. Some of these sites have been excavated and surveyed as to their archaeological significance. Many of the sites have been vandalized by "pot hunters".

In more recent history, the river was used by Confederate forces during the Civil War to transport supplies, in order to avoid Union blockades on the lower St. Johns River. Hubbard Hart, who began a steamboat business in 1860 as a means of transporting supplies on the river, figured prominently in blockade-running during the Civil War. The steamers traveled down the St. Johns from Lake Harney to Welaka and up the Oklawaha River to the Seminole War post of Fort Brook, which was near the confluence of Orange Creek and the Oklawaha River. On their return trip to Lake Harney, the steamers carried cotton produced on southern plantations, which was the major export product of the south.

After the Civil War, Hart continued to open the Oklawaha region to colonization and agricultural development by carrying goods, supplies, travelers, and tourists to the Oklawaha, Silver Springs, and the lake country of the Oklawaha's headwaters, and by transporting agricultural products, such as citrus, from the Oklawaha region to Palatka. The last season the Hart Line ran Oklawaha River trips was 1919. The Clyde Steamship Company and the Silver Spring Company continued to run steamboat trips on the Oklawaha and Silver rivers until the 1920s (Mitchell, 1947).

G. Vegetative Communities

For the purposes of this management plan, the vegetative communities found within and adjacent to the Oklawaha River Aquatic Preserve have been divided into the following broad categories; aquatic plant communities, wetland plant communities, and upland plant communities. Within the Oklawaha River valley system, these three broad categories contain the plant species that are part of the natural community continuum from hydric to xeric conditions. Figure 4 is a general vegetation map indicating the approximate extent of the dominant plant community - the wetland/floodplain forest mixed-swamp community - within the boundaries of the Oklawaha River Aquatic Preserve.

The following is a brief description of the aquatic, wetland, and upland plant communities found in, immediately adjacent to, and associated with the Oklawaha River Aquatic Preserve.

Aquatic Plant Communities. A diversity of aquatic plant species and wetland communities are found in the Oklawaha and Silver River systems within the aquatic preserve boundary. The aquatic species vary with water level fluctuation, water quality, flow velocity, and available sunlight. In shaded areas of the Oklawaha River, submerged vascular plants are almost absent; blue green, green algae, flagellated algae, and diatoms are the most common plant species. Floating vegetation, submerged plants, emergent plants, and marsh-type plants are found along the river's banks and in shallow areas where water flow is less than in the main river channel (Lugo and Carr, 1970). The most common emergent aquatic plant is spatterdock, Nuphar sp., which forms extensive beds which are important

habitat for fish and other wildlife. Wild rice, Zizania aquatica, an important wildlife food source, is found along the river's banks.

The water in the Silver River is of sufficient clarity to allow the growth and development of large beds of submerged vegetation such as eelgrass, Valisneria americana. These beds of submerged vegetation provide habitat for numerous aquatic animal species.

Wetland Plant Communities. Within the aquatic preserve boundary, the wetland plant communities along the Oklawaha River consist of a mixture of hardwood swamp and cypress swamp. This mixed-swamp community of the river floodplain forest is composed mostly of deciduous hardwoods dominated by ash species and is the dominant community within the Oklawaha River valley. The Florida Natural Areas Inventory describes the two plant community categories that form the floodplain forest as follows:

Hardwood Swamp- this category contains communities such as floodplain forests, floodplain swamps, and hardwood swamps. The vegetation in this category is characterized by sweet bay, Magnolia virginiana, black gum, Nyssa sylvatica, pop ash, Fraxinus caroliniana, red maple, Acer rubrum, and cypress, Taxodium distichum. Soils are floodplain types and are frequently inundated.

Cypress Swamp- these are regularly inundated wetlands that form borders along rivers, creeks, and lakes, or occur as isolated wetlands. The dominant vegetation is bald and pond cypress, Taxodium distichum var. distichum and var. nutans sometimes with an understory of lyonia, Lyonia lucida, buttonbush Cephalanthus occidentalis, and assorted ferns.

Appendix A-1 is a more extensive listing of the aquatic and wetland plant species found within the Oklawaha River Aquatic Preserve.

Upland Plant Communities. The upland vegetation along the Oklawaha River is one of the striking features of the Oklawaha River system. Many of the plant species found surrounding the Oklawaha River are characteristic of the area. Several species reach their southern range limit here such as white ash, Fraxinus americana; hop-hornbeam, Ostrya virginiana; box elder, Acer negundo; red buckeye, Aesculus pavia; and swamp chestnut oak, Quercus michauxii. Other species such as cedar elm, Ulmus crassifolia; pumpkin ash, Fraxinus profunda; and blue stem palmetto, Sabal minor; reach their maximum development in terms of abundance and size within Florida in the Oklawaha River system.

The upland vegetation within the Oklawaha River system can be divided into three basic categories; hydric, mesic, and xeric hammocks. The hydric hammock community, which is found along the upland edge of the floodplain, is dominated by hardwoods with a canopy consisting of sweetgum, Liquidambar styraciflua,

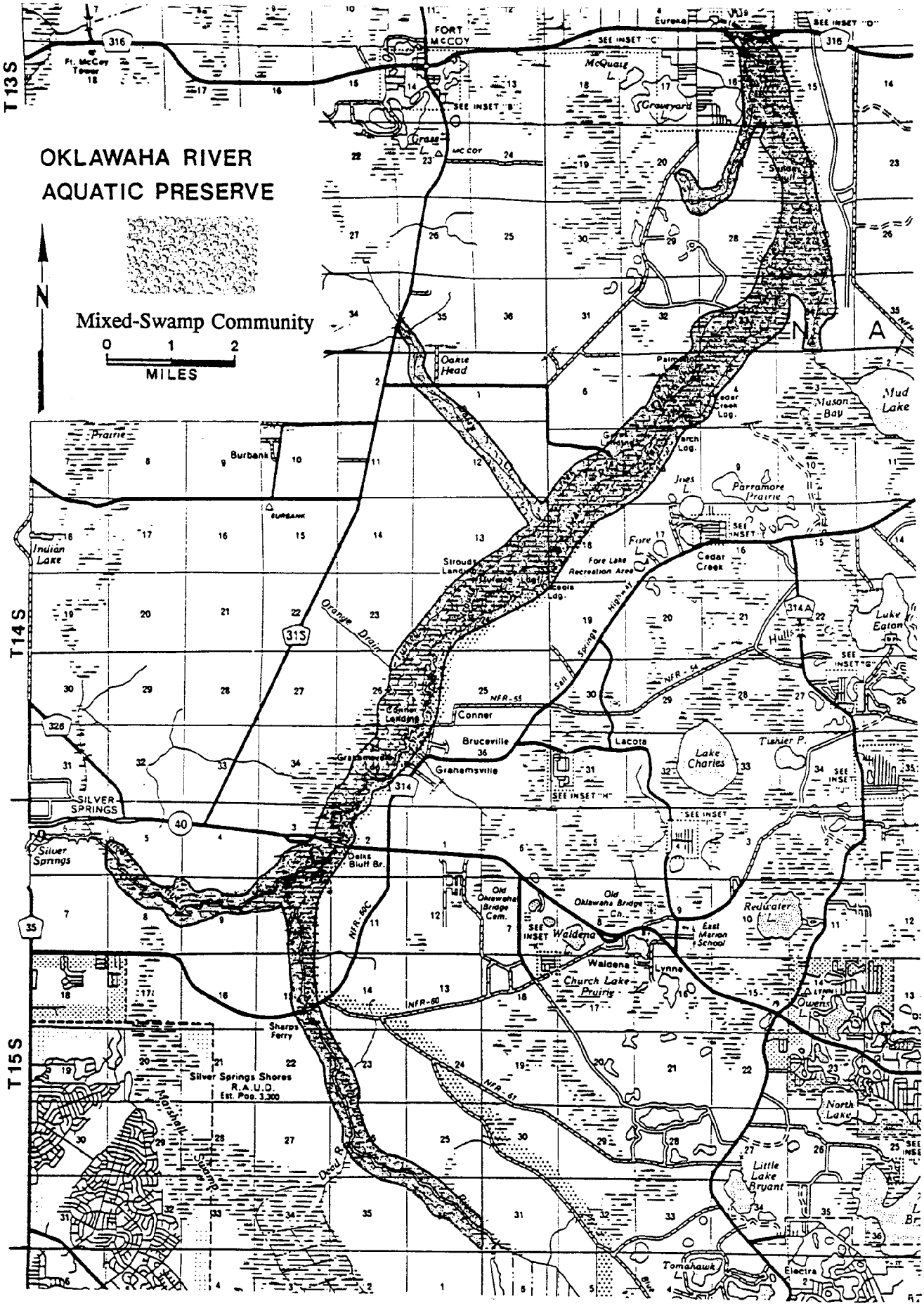

FIGURE 4 Oklawaha River Aquatic Preserve Vegetation Map

cabbage palm, Sabal palmetto, red maple, Acer rubrum, laurel oak, Quercus laurifolia, and water oak, Quercus nigra. The mesic hammock occurs farther upland from the hydric hammock community and is dominated by pignut hickory, Carya glabra, water oak, laurel oak, live oak, Quercus virginiana, sweetgum, and cabbage palm. The next plant community is the xeric hammock community, which occurs the furthest upland in the hydric, mesic, xeric hammock continuum. The xeric hammock community is dominated by evergreen oaks and is the driest of the three hammock communities. Within the aquatic preserve boundary are bluffs arising from the Oklawaha River where the progression from one hammock community to the next can be seen over a very short distance as elevation increases.

A loblolly pine hammock community is found adjacent to the mesic hammock community and the river floodplain communities from Gores Landing southward along the Oklawaha River. Loblolly pine, Pinus taeda, is the dominant species in this community and hardwood species of the hydric and mesic hammock type are also found here. The loblolly pine hammock is found on flat terrain with poorly drained, clay soils and is unique to this area of Florida. Appendices A-2, A-3, A-4, A-5, and A-6 list additional plant species found in these communities.

H. Aquatic Fauna and Fisheries Resource

The Oklawaha River supports a large and diverse population of aquatic invertebrates which are important links in the system's food chain. Invertebrates are consumed by small carnivorous fish which, in turn, are consumed by larger game fish. The invertebrates are also consumed by game fish. Between 100 and 125 species of aquatic insects are known to occur in the river system (Reid 1970). Two aquatic invertebrates, Campoloma floridensis, a live-bearing snail and Procambarus geodytes, a crayfish, are endemic to the St. Johns River drainage system (USDA Forest Service, 1973). Table 1 is a list of some of the invertebrate classes and orders found in the Oklawaha River system.

Approximately 110 species of fish have been found in the Oklawaha River drainage system as compared to 78 species in the Escambia River and 70 species in the Savannah River in Georgia. The species diversity of the Oklawaha River can be related to its variety of sediment types, which range from mucks to sands. These different bottom types support plant and invertebrate life forms which are preyed upon by herbivorous, carnivorous, and omnivorous fish species (Reid, 1970). Table 2 lists some of the families of fish found in the Oklawaha River system. One species of fish, the Brown Darter, is found only in the Oklawaha River and an area of the St. Johns River near Welaka (Florida Game and Fresh Water Fish Commission, 1976b).

Table 1. Some Invertebrate Classes and Orders of the Oklawaha

Class	Common Name
Gastropoda	Snails
Pelecypoda	Clams and Mussels
Hirudinea	Leeches
Oligochaeta	Aquatic Earthworms
Nematoda	Roundworms
Turbellaria	Flatworms
Order	
Ephemeroptera	Mayflies
Diptera	Mosquitoes, Flies
Hemiptera	True Bugs
Odonata	Dragonflies
Lepidoptera	Aquatic Caterpillars
Coleoptera	Beetles
Tricoptera	Caddis Flies
Plecoptera	Stoneflies
Collembola	Springtails
Amphipoda	Scuds
Decapoda	Crayfish and Shrimp
Podocopa	Seed Shrimp
Eucopepoda	Copepods
Branchiura	Fish Lice
Cladocera	Water Fleas
Isopoda	Sowbugs

Sources: Reid (1970), Penak (1953), Pratt (1935).

Table 2. Fish Families of the Oklawaha System

Family	Common Name
Percidae	Darters
Gobiidae	Gobies
Clupeidae	Herring-like Fish
Poecillidae	Live-bearing Fish
Cyprinidae	True Minnows
Amiidae	Mudfish
Lepisosteidae	Garfish
Centrarchidae	Sunfish and Bass

Escocidae	Pickerel
Ictaluridae	Catfish
Anguillidae	Eels
Catostomidae	Suckers
Aphredoderidae	Pirate Perches

Sources: Florida Game and Fresh Water Fish Commission (1976b), and Reid (1970).

I. Upland Fauna and Wildlife Resources

Vertebrates are the dominant animals in most ecosystems and serve as indicators of an ecosystem's diversity. The number of different vertebrate species in the Oklawaha River system indicates a rich ecosystem. More than 300 species of vertebrates, exclusive of fish species, inhabit the area surrounding the Oklawaha River (Layne, 1970). The diversity of animal species within the Oklawaha River system is due in part to the diverse habitat types found within a relatively small area surrounding the river system. The change from one plant community to the next occurs over a relatively short distance within the Oklawaha River Valley. This rapid change leads to substantial overlapping of the ranges of several different animal species.

Several animal species, such as the rainbow snake, Farancia erythrograma; the rough earth snake, Virginia striatula; and the spring peeper, Hyla crucifer, reach their southern range limit in the Oklawaha River system. The floodplain forest along both the Silver River and the Oklawaha River is excellent habitat for the Florida black bear, Ursus americanus floridanus, a species listed as threatened by the Florida Game and Fresh water Fish Commission. It is also excellent habitat for the Florida panther, Felis concolor coryi, listed as endangered by the Florida Game and Fresh Water Fish Commission, should the panther be reintroduced to the area. More extensive lists of animal species found in the Oklawaha River system are in Appendices A-7 to A-10.

J. Species Designated Rare, Threatened, Endangered, or of Special Concern

There are several species of plants and animals native to the Oklawaha River system which are listed as rare, endangered, threatened, or of special concern. The status of each species was determined by federal and state agencies, and by conservation organizations. Tables 3 and 4 list some of the listed plant and animal species which are likely to inhabit the area within the Oklawaha River Aquatic Preserve boundary.

Table 3. Rare, Threatened, and Endangered Plant Species

SCIENTIFIC NAME	COMMON NAME	STATUS	HABITAT
Adiantum capillus-veneris	venus-hair fern	S-T	mixed swamp
Illicium parviflorum	star anise	S-T,C-2	hydric hammock spring-run
Litsea aestivalis	pondspice	S-T, C-2	hydric hammock cypress dome
Parnassia grandifolia	grass-of-parnassus	S-E, S-2	mesic flatwoods cypress dome, river edge
Psilotum nudum	whisk fern	S-T	mixed swamp
Salix floridana	Florida willow	S-T, C-2 S-2, G-2	spring runs hydric hammock
Spigelia loganoides	Florida pinkroot	S-E	hydric hammock
Lobelia cardinalis	cardinal flower	S-T	hydric hammock

Status Explanation:
S = State of Florida listing; following number indicates the species status in Florida: an S-1 species is ranked as critically imperiled statewide due to extreme rarity, S-2 species are imperiled, S-3 species are very rare or found in restricted ranges throughout the state. G = Global ranking based upon species worldwide status; a G-1 species is critically imperiled due to rarity or extreme vulnerability to extinction, G-2 globally imperiled, G-3 very rare or found in restricted ranges. F = Federal listing, E = Endangered, T = Threatened, R = Rare C = Candidate for listing by U.S. Fish and Wildlife Service; number indicates category of species, Category 1 species have the highest likelihood of being listed as rare, threatened, or endangered.

Sources: Florida Natural Areas Inventory, 1990. Florida Game and Fresh Water Fish Commission, 1990. Florida Game and Fresh Water Fish Commission, Cross

Table 4. Rare, Threatened, and Endangered Animal Species

SCIENTIFIC NAME	COMMON NAME	STATUS
Amphibians and Reptiles		
Alligator mississippiensis	American Alligator	S-SSC
Drymarchon corais couperi	Eastern Indigo Snake	S-T F-T
Birds		
Aramus guarauna	Limpkin	S-SSC
Egretta caerulea	Little Blue Heron	S-SSC
Egretta thula	Snowy Egret	S-SSC
Egretta tricolor	Louisiana Heron	S-SSC
Grus canadensis pratensis	Florida Sandhill Crane	S-T
Haliaeetus leucocephalus	Bald Eagle	S-T F-E
Mycteria americana	Wood Stork	S-E F-E
Mammals		
Sciurus niger shermani	Sherman's Fox Squirrel	S-SSC
Trichechus manatus latriostris	West Indian manatee	S-E
Ursus americanus floridanus	Florida Black Bear	S-T

Status Explanation: S = State of Florida Ranking
F = Federal Ranking
SSC = Species of Special Concern
R = Rare
T = Threatened
E = Endangered

Source: Florida Game and Fresh Water Fish Commission (1990).

K. Regional Land Use and Associated Impacts

Within the aquatic preserve boundaries, almost all of the land adjacent to the Oklawaha and Silver Rivers is in public ownership. The State of Florida Department of Natural Resources and the United States Department of Agriculture Forest Service are the controlling agencies for the lands in public ownership within the aquatic preserve. These agencies manage these lands for conservation, silviculture, and recreation. The U.S. Forest Service routinely harvests timber within the Ocala National Forest. However, no timber operations are conducted within the boundaries of the Oklawaha River Aquatic Preserve.

Within the preserve boundaries there are limited privately owned inholdings used for silviculture, recreation, and low density residential use. These inholdings are primarily located along the Oklawaha River.

The impacts upon the aquatic preserve from the adjacent land uses are at this time minimal. The land uses upstream from the aquatic preserve in the upper reaches of the Oklawaha River and in the Oklawaha Chain of Lakes have a much greater effect upon the preserve. The Silver Springs attraction located at the headwaters of the Silver River probably has a negative impact upon the water quality of the Silver River due to the large mammal enclosures that allow these animals direct access to the water. As previously stated, lowered water quality due to urbanization, agricultural activities, and other activities in the headwaters of the Oklawaha and Silver Rivers are areas of concern.

```
  OCLC:  26478789          Rec stat:    c
  Entered:    19920825     Replaced:    19950607     Used:    19950511
$ Type: a       Bib lvl: m       Source:   d       Lang:  eng
  Repr:         Enc lvl: I       Conf pub: 0       Ctry:  flu
  Indx: 0       Mod rec:         Govt pub: s       Cont:  b
  Desc: a       Int lvl:         Festschr: 0       Illus: b
                F/B:     0       Dat tp:   s       Dates: 1992,     %
$   1  040    FBA 'c FBA 'd FDA %
$   2  043    n-us-fl %
$   3  092    574.9759 '2 20 %
$   4  090    'b  %
$   5  049    NOGM %
$   6  245 00 Oklahawa [i.e., Oklawaha] River aquatic preserve management plan
: 'b (cabinet ready draft) / 'c prepared by the Bureau of Submerged Lands and
Preserves, Division of State Lands. %
$   7  260    [Tallahassee] : 'b Dept. of Natural Resources, 'c [1992]. %
$   8  300    96 p. : 'b maps ; 'c 28 cm. %
$   9  500    "March 1992." %
$  10  504    Includes bibliographical references (p. 71-73). %
$  11  651  0 Oklawaha River (Fla.) %
$  12  650  0 Rivers 'z Florida. %
$  13  650  0 Aquatic resources 'z Florida 'z Oklawaha River. %
$  14  650  0 Marine parks and preserves 'z Florida 'z Oklawaha River 'x
Management. %
$  15  710 1  Florida. 'b Bureau of Submerged Lands and Preserves. %
$  16  740 01 Oklawaha River Aquatic Preserve management plan. %
```

1254

CHAPTER IV

MANAGEMENT AREAS

A. Introduction

This chapter describes management areas for the Oklawaha River Aquatic Preserve and delineates the general rule criteria apply for allowable uses (e.g., activities and structures) associated with each area. Each management area is classified by the value of natural and cultural resources (e.g., types, occurrence) on submerged lands adjacent to the differing types of upland land use (e.g., residential, commercial).

The purpose of this chapter is four-fold: (1) to provide a better understanding of the general rule criteria designed to preserve and protect resources and habitat, (2) to identify the types of allowable uses on state-owned submerged lands within a preserve, (3) to provide local planners with a guide for land use decisions, and (4) to provide both the staff of the Bureau of Submerged Lands and Preserves and other agencies a continuity of direction in the management of the preserve. As such, this intent will afford habitat protection while lending some measure of predictability for allowable public and private uses in the aquatic preserve.

Prior to providing the criteria for specific resource management areas, it is important that the intent, jurisdiction, and limitations of Florida's Aquatic Preserve Program be reiterated. Section 258.36, F.S., states that "It is the intent of the Legislature that the state-owned submerged lands in areas which have exceptional biological, aesthetic, and scientific value...be set aside forever as aquatic preserves or sanctuaries for the benefit of future generations." The program has jurisdiction over the use of state-owned submerged lands within the boundaries of a given preserve. Activities which occur outside the boundaries of an aquatic preserve or which do not directly affect state-owned submerged lands are not within the jurisdiction of the Aquatic Preserve Program (e.g., adjacent upland uses, regulation of commercial fishing).

There are a number of differences between the rules governing uses of state-owned submerged lands within an aquatic preserve relative to those not within an aquatic preserve. The principal difference is that uses of the submerged lands within an aquatic preserve must be shown to be "in the public interest" before they can be authorized as opposed to being "not contrary to the public interest" for non-aquatic preserve areas.

B. Management Area Classifications

A key component of the management program for any aquatic preserve is the division of the preserve into management areas. The classification of management areas in an aquatic preserve is based upon the resource value of submerged lands within the preserve associated with existing and future land uses on the adjacent uplands as designated in the local government comprehensive plan(s). As in the delineation of upland uses through zoning, the delineation of a preserve into management areas is two-fold: (1) to identify areas of public and private uses, and (2) to provide standards with which proposed uses and activities must comply. The intent of these management area classifications is to make potential development activities compatible with resource protection goals.

Designated or existing land uses are incorporated into the classification of management areas because use of the adjacent uplands has a direct bearing on the intensity of demand for uses of state-owned submerged lands. As mentioned earlier, the Aquatic Preserve Program has no jurisdiction over the designated use of the adjacent uplands. The incorporation of a designated land use into the management area classification is simply an acknowledgement of a local government's decision as to how a specific upland area can be developed. In general, land uses to be incorporated in the classification of submerged lands management areas for all preserves include:

Agriculture (AG): This category represents state-owned submerged lands adjacent to land designated on a future land use map for a county and/or municipality as agriculture. It is intended to include sparsely populated areas used primarily for agricultural and/or forestry purposes.

Single-Family (SF): This category represents state-owned submerged lands adjacent to land designated on a future land use map for a county and/or municipality as single-family residential. It is intended to include areas using the adjacent portion of the preserve solely for private recreational activities.

Multi-Family (MF): This category represents state-owned submerged lands adjacent to land designated on a future land use map for a county and/or municipality as multi-family residential. It is intended to include areas where more than one private residence are using the adjacent portion of the preserve solely for private recreational activities. The associated residences include townhouses, trailer parks, condominiums, apartments, and any other group of multi-family dwellings. This category also includes a group of single-family property owners (i.e., homeowners association) that proposes to use state-owned submerged lands for the mutual benefit of the group.

Commercial-Industrial (CI): This category represents state-owned submerged lands adjacent to land designated on a future land use map for

a county and/or municipality as commercial or industrial. The category is also intended to incorporate uses associated with structures that charge fees or generate revenue. Examples of commercial uses include: marinas, restaurants, fish houses, and yacht clubs that charge membership fees.

Public Recreation (PR): This category represents state-owned submerged lands adjacent to land designated on a future land use map for a county and/or municipality as public recreation/preservation and is utilized for the purposes of public recreation. It is intended to include (1) areas where structures are used by the general public at no charge and (2) federal, state, and municipal parks that charge a nominal fee. Military property, while not always open to the public, is included in this category since the buildings and grounds are often designated as public facilities.

Preservation (P): This category represents state-owned submerged lands adjacent to land designated on a future land use map for a county and/or municipality as preservation. Upland ownership can be either public or private.

Each of the land use classifications listed above is assigned an appropriate number to identify the resource value of the adjacent submerged lands. The methodology used to determine this resource value shall be consistent with the latest methodology approved by the Bureau of Submerged Lands and Preserves.

If an area within the preserve is identified as a **Primary Resource Protection Area (PRPA)**, then it will be assigned a resource value of **"1"**. A PRPA essentially combines Resource Protection Areas 1 and 2, as defined in Sections 18-20.003(31), and 18-20.003(32), F.A.C.

Submerged areas that are characterized by the absence of the above resource attributes will be identified as a **Secondary Resource Protection Area (SRPA)** and assigned a resource value of **"2"**. A SRPA is a Resource Protection Area 3 as defined by Section 18-20.003(33), F.A.C.

As stated previously, resource values are to be incorporated into the classification of management areas. For instance, if a submerged area within the preserve is determined to have a resource value of 1 and the adjacent uplands is zoned as single-family residential (SF), then this management area would be classified as **SF/1**.

C. Minimum Criteria for Allowable Uses

Chapter 18-20, F.A.C., (Appendix B), provides the minimum standards with regard to the utilization of state-owned submerged lands within an aquatic preserve as authorized by the Board of Trustees and the Department of Natural Resources. The minimum standards for each allowable use are detailed below. It should be noted that other regulatory agencies rules and jurisdictions over activities may apply within the aquatic preserves.

All Dock Structures: Section 18-20.004(5)(a), F.A.C., states that all docking facilities within an aquatic preserve shall meet the following standards and criteria:

1. no dock shall extend waterward of the ordinary high water line (OHWL) more than 500 feet or 20 % of the width of the waterbody at that particular location, whichever is less;

2. areas of significant biological, scientific, historic, and/or aesthetic value require special management considerations. Modifications to docks in these areas may be more restrictive and shall be determined on a case-by-case basis;

3. the number, lengths, drafts, and types of vessels allowed to utilize the proposed facility may be stipulated;

4. where local governments have more stringent standards and criteria for docking facilities, the more stringent standards for the protection and enhancement of the aquatic preserve shall prevail.

Additional policies include all docking structures to access a depth of -4 feet at ordinary low water (OLW) and a reduction in the width of a terminal platform to 4 feet wide if the platform is over submerged vegetation. This reduction will not affect the overall area of the terminal platform.

Private Residential Single Docks: Section 18-20.004(5)(b), F.A.C., states that private residential single docks, as defined by Section 18-20.003(23), F.A.C., shall conform to the following specific design standards and criteria:

1. any main access dock cannot exceed a maximum width of four feet;

2. must be designed and constructed to ensure maximum light penetration;

3. can extend from the shoreline no further than -4 feet at (OLW);

4. when the water depth is -4 feet MLW at an existing bulkhead, the maximum dock length from the bulkhead shall be 25 feet, subject to modifications accommodating shoreline vegetation overhang;

5. wave break devices shall be designed to allow for maximum water circulation and built in such a manner as to be part of the dock structure;

6. the maximum size of the terminal platform shall not exceed 160 square feet;

7. dredging to obtain navigable water depths is strongly discouraged.

In the interests of clarification, the term "private residential single docks" refers to those docks associated with single-family residences that are used for private recreational purposes.

Private Residential Multi-Slip Docks: Section 18-20.004(5)(c), F.A.C., states that private residential multi-slip docks, as defined by Section 18-20.003(24), F.A.C., shall conform to the following design standards and criteria:

1. the area of sovereignty submerged land preempted by the docking facility shall not exceed the square footage amounting to ten times the riparian waterfront footage of the affected waterbody of the applicant, or the square footage attendant to providing a single dock in accordance with the criteria for private residential single docks, whichever is greater. A conservation easement or other such restriction acceptable to the Board must be placed on the riparian shoreline, used for the calculation of the 10:1 threshold, to conserve and protect shoreline resources and subordinate/waive any further riparian rights of ingress and egress for additional docking facilities;

2. docking facilities and access channels shall be prohibited in Resource Protection Areas 1 and 2 (= PRPA), except as allowed pursuant to Section 258.42(3)(e)1, F.S., while dredging in Resource Protection Area 3 (= SRPA) shall be strongly discouraged;

3. water depths adjacent to and within the proposed mooring area shall have a minimum clearance of one foot between the deepest draft vessel and the submerged bottom at OLW;

4. main access piers and connecting walks shall not exceed six feet in width;

5. terminal platforms shall not exceed eight feet in width;

6. finger piers shall not exceed three feet in width and 25 feet in length;

7. pilings may be utilized as required to provide adequate mooring capabilities;

8. specific provisions of Section 18-20.004(5)(d), F.A.C., for commercial, industrial, and other revenue generating/income related docking facilities shall also apply to private residential multi-slip docks.

Exceptions to the standards and criteria for any docking facility may be considered, but only upon demonstration that such exceptions are necessary to ensure reasonable riparian ingress and egress.

Lease or Transfer of Lands: Section 18-20.004 (1)(b), F.A.C., states that there shall be no further lease or transfer of sovereignty lands within an aquatic preserve unless such transaction is in the public interest. Section 18-20.004(2), F.A.C., specifically defines the public interest test. Section 18-20.004(1)(e), F.A.C., states that a lease, easement, or consent of use may be authorized only for the following activities: (1) a public navigation project; (2) maintenance of an existing navigation channel; (3) installation or maintenance of approved navigational aids; (4) creation or maintenance of a commercial/industrial dock, pier, or marina; (5) creation or maintenance of private docks; (6) minimum dredging of navigation channels attendant to docking facilities; (7) creation or maintenance of shore protection structures; (8) installation or maintenance of oil and gas transportation facilities; (9) creation, maintenance, replacement, or expansion of facilities required for the provision of public utilities; and (10) other activities which are a public necessity or which are necessary to enhance the quality and quantity of the preserve and which are consistent with the Florida Aquatic Preserves Act (Sections 258.35 - 258.46, F.S.). Section 18-20.004(1)(f), F.A.C., states that structures to be built in, on, or over sovereignty lands are limited to those necessary to conduct water-dependent activities.

Utility Easements: Section 18-20.004(3)(c), F.A.C., states that utility cables, pipes, and other such structures shall be constructed and located in a manner that will cause minimal disturbance to submerged resources and do not interfere with traditional uses. It will be the policy to place additional utilities into designated corridors or existing easements within the Oklawaha River Aquatic Preserve.

Spoil Disposal: Section 18-20.004(3)(d), F.A.C., states that spoil disposal within an aquatic preserve shall be strongly discouraged and may be approved only where the applicant has demonstrated that there is no other reasonable alternative and that the spoiling activity may be beneficial to, or at a minimum, not harmful to the quality or utility of the preserve.

Piers: Piers shall be constructed in accordance with the minimum criteria provided by Section 18-20.004(5)(b), F.A.C. In addition, the following conditions apply to all piers: (1) the entire structure will be elevated to a minimum of 5 feet above the OHWL, (2) hand rails will be installed around the perimeter of the structure, (3) at least one "Docking Prohibited" sign will be posted and maintained on each side of the pier, (4) no temporary or permanent mooring of vessels will be permitted, and (5) dredging is prohibited when associated with pier construction and maintenance.

Ramps: Boat ramps will be reviewed on a case-by-case basis. Determining factors to be reviewed include: (1) the elimination or alteration of natural resources or habitat (e.g., submerged grasses, shoreline vegetation, nesting areas), (2) the amount of dredging and/or filling of submerged lands, and (3) accessibility to the ramp from water and land routes.

Additional criteria for the repair, replacement, and expansion of existing structures are provided for in Chapter 18-21, F.A.C. Replacement and expansion of structures must comply with the minimum criteria provided for in Chapter 18-20, F.A.C.

D. Management Areas

In this section, the management areas are delineated with boundaries, descriptions, and allowable uses. Due to changes that may occur from the rezoning of adjacent uplands and altering biological conditions on submerged lands, the final decision on approving, modifying or denying uses of the submerged lands within the preserve will be made based on field surveys and assessments of project sites. Due to the public ownership of virtually all of the land adjacent to the Aquatic Preserve and the homogenous nature of the floodplain communities associated with the Oklawaha and Silver Rivers, a single management area should be designated (Figure 5).

Marion County's Future Land Use Map transmitted to the State of Florida for primary review designates the land within the aquatic preserve as a Natural Reservation as defined in Rule 9J-5.003(58) FAC. The land adjacent to the Natural Reservation is designated as Rural Land with a base density of one dwelling unit per ten acres. The Future Land Use Map also designates an Environmentally Sensitive Overlay Zone on those lands in private ownership within approximately one quarter of a mile on either side of the Oklawaha River (Figure 6).

The management area designation of PR/1 - public recreation/primary resource protection area - is the most appropriate designation. The management area criteria for the aquatic preserve are as follows:

MANAGEMENT AREA PR/1

public recreation/primary resources/protection area

Boundaries: This area is defined as the state-owned submerged lands of the Oklawaha River Aquatic Preserve as described in Chapter III.

Description: This area is characterized by the channels and extensive, well-defined floodplains of the Oklawaha and Silver Rivers. The dominant vegetative species are deciduous hardwoods and bald cypress. The area provides habitat for numerous aquatic and terrestrial animal species. The adjacent uplands along the border of the aquatic preserve are primarily in public ownership. Much of the privately held uplands are owned by timber companies with a few smaller, individually owned tracts.

Allowable Uses: utility easements (in designated corridors), public docks (constructed or repaired in a manner to minimize impacts on submerged lands resources), ramps, piers.

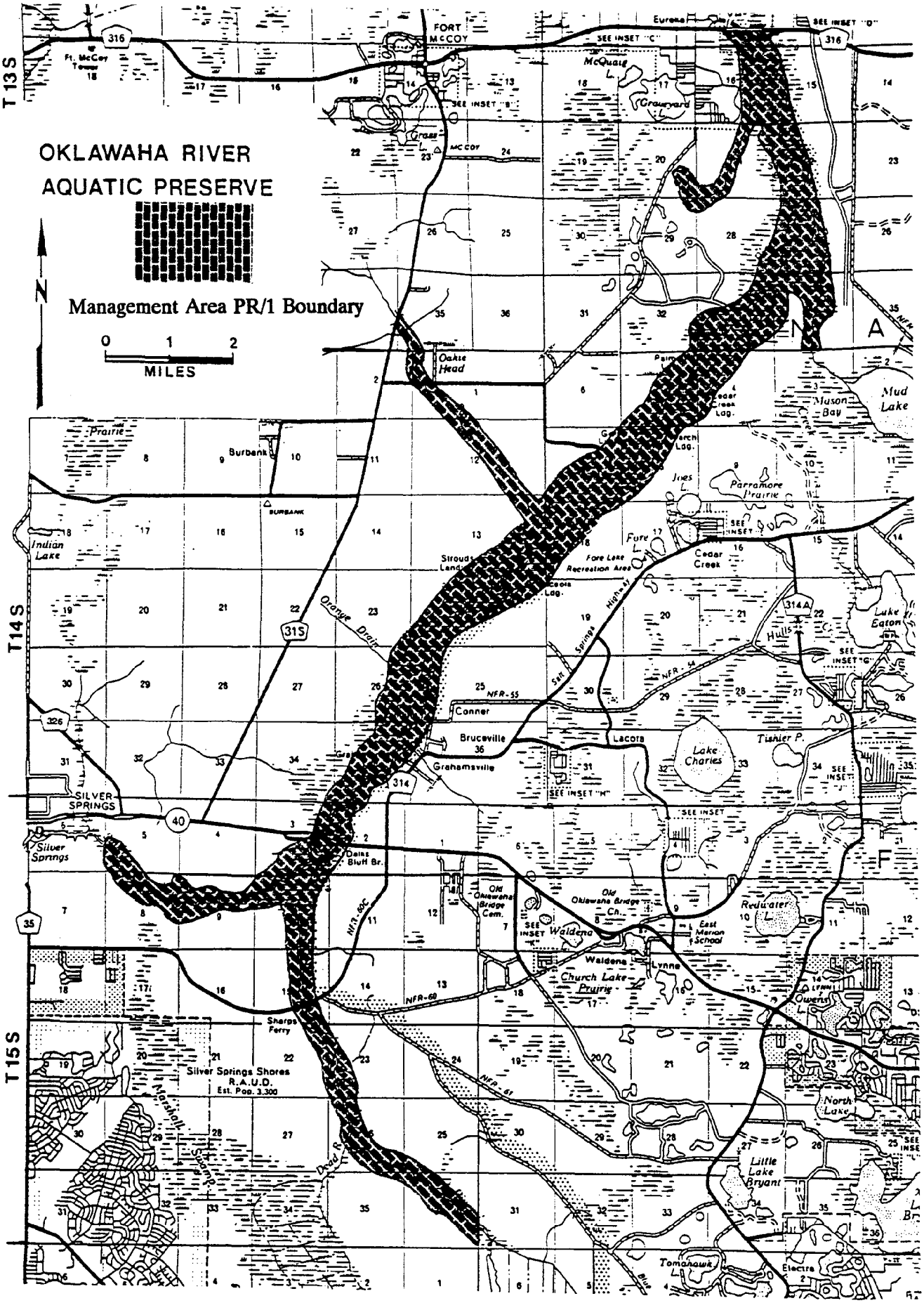

FIGURE 5 Aquatic Preserve Management Area

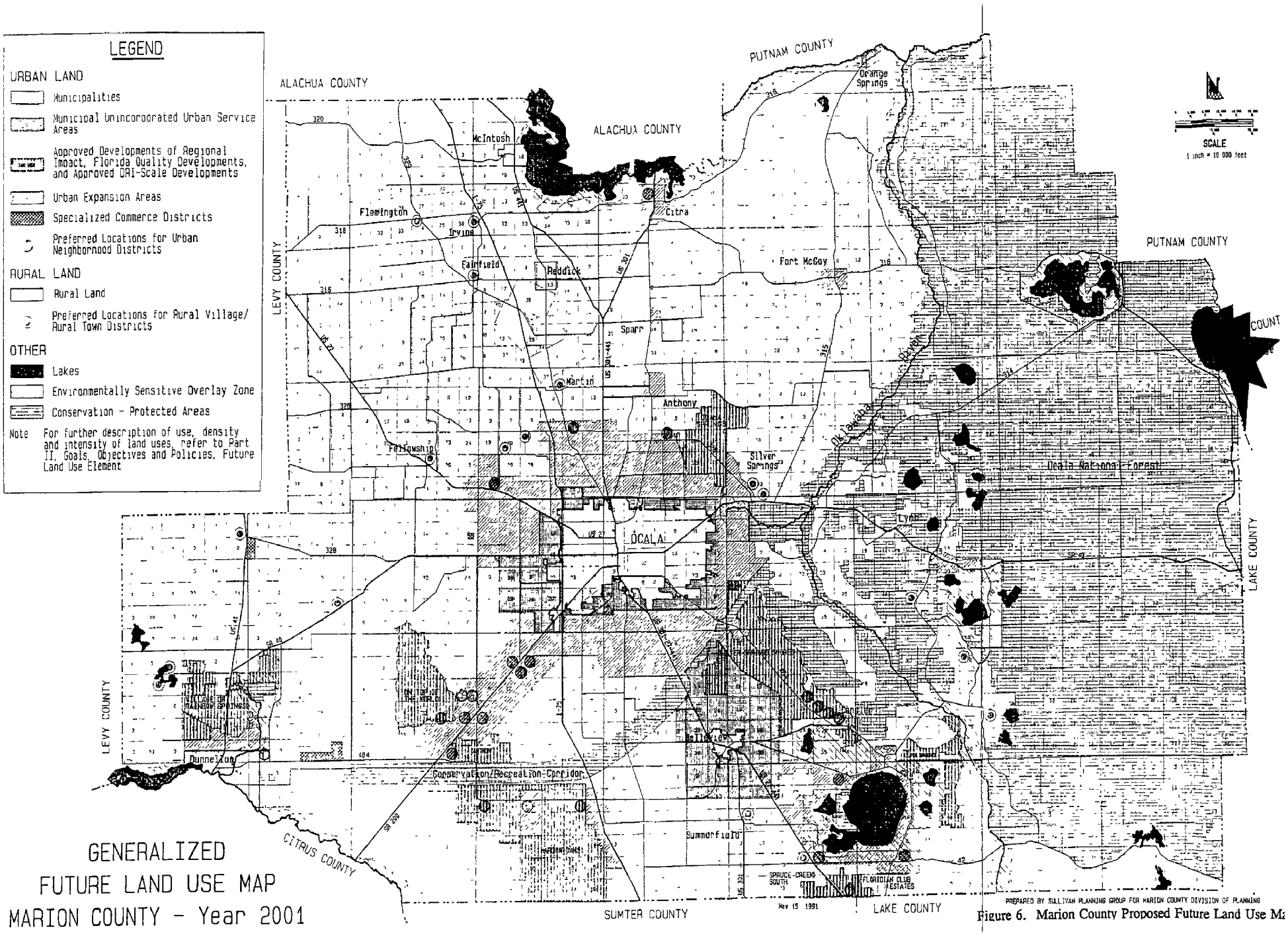

Figure 6. Marion County Proposed Future Land Use Ma

CHAPTER V

SITE SPECIFIC RESOURCE MANAGEMENT ISSUES AND NEEDS

This chapter lists the currently recognized management issues that affect the Oklawaha River Aquatic Preserve from the standpoint of maintaining or enhancing the ecological integrity of the preserve, and the safe utilization of the resource by the public. The first section of this chapter is concerned with the management issues peculiar to the preserve. The latter section of this chapter suggests management initiatives to address the concerns of the management issues.

A. Management Issues

Due to the public ownership of most of the uplands immediately adjacent to the Oklawaha River Aquatic Preserve, there are currently no management concerns due to adverse impacts from development of the uplands adjacent to the preserve. It is assumed that very few or no submerged land leases or easements that are associated with private sector activities will be applied for within the aquatic preserve. The section of the Oklawaha and Silver Rivers within the aquatic preserve are, however, part of a much larger ecosystem that is the Oklawaha River Valley system from the Oklawaha headwater lakes to the confluence of the Oklawaha and St. Johns Rivers.

Unfortunately, some of the activities that are having adverse impacts upon the Oklawaha River Aquatic Preserve have not occurred within the limits of the preserve and are beyond the specific regulatory authority governing the preserve. Coordination with other agencies and local governments that have regulatory authority over and management responsibility for the natural resources within the Oklawaha River Valley should be of primary concern.

Management of the Oklawaha River, its headwaters, and tributaries should be undertaken on a system-wide basis to maintain and where necessary enhance the biological integrity of the system. Restoration activities, as part of a system-wide approach, in the upper Oklawaha River basin have begun as part of the SWIM Plan for this basin. Further integration of the programs of the managing agencies will be of benefit to the natural and cultural resources within the Oklawaha River Aquatic Preserve. The inclusion of those lands outside of but adjacent to the aquatic preserve that are in the Cross Florida Greenbelt State Recreation and Conservation Area, into the management framework of the aquatic preserve will enhance the preserve.

The primary management issues within the aquatic preserve are associated with the ever increasing recreational use of the river. Increased boat traffic brings with it an

increased rate of bank erosion due to wave and wake action and the increased potential for boating accidents. On a river such as the Oklawaha that is relatively narrow, winding, contains numerous sharp bends, and has heavily vegetated banks that limit sight distance and attenuate sounds, the potential for boating collisions is heightened, particularly when canoes and motorboats of various sizes and horsepower are mixed. If public safety and accelerated bank erosion due to boat traffic are not currently issues of concern on the Oklawaha River, they will be as the recreational pressure upon the river increases. A Marion County ordinance establishes a no wake zone for the entire length of the Silver River. The no wake zone was imposed to limit the ill effects of erosion from boat wakes along the banks of the Silver River.

Another management issue of growing concern is the pillaging of Indian middens and other archaeological sites within the aquatic preserve, particularly along the Oklawaha River.

B. Management Initiatives

The following are suggested management activities and initiatives that will address the previously listed management issues. These initiatives are site specific and go beyond the issues currently addressed by statute or rule.

1. Integrate and coordinate the management of the aquatic preserve with those agencies having system-wide management responsibility so as to provide for the maintenance and enhancement of the ecological integrity of the preserve and entire riverine system.

2. Provide for the increased protection of the archaeological and cultural resources within the preserve.

3. Determine the feasibility of providing additional low impact access points, such as visual access and bank fishing areas, along the rivers within the aquatic preserve.

4. Determine the extent of any safety problem from boat speed and the extent of the acceleration of bank erosion from wake action.

CHAPTER VI

MANAGEMENT ACTION PLAN

This chapter establishes the guidelines which allow for the management and protection of the Oklawaha River Aquatic Preserve's natural, archaeological and cultural resources for the benefit of the current and future generations of residents and visitors of Florida (Section 258.35, F.S.).

Before an effective program can be designed to manage and protect natural resources, the function, importance, extent, and location of those resources must be determined and defined. At the very least, a basic understanding of the function of a natural system is fundamental to its proper management.

Additionally, the identification of those activities or parameters that affect a natural system and its resources, either positively or negatively, is necessary. This information will form the foundation from which action will be initiated to manage and protect these resources. The management strategies for an Aquatic Preserve Program must consist of a variety of components such as resource inventory, resource management, resource protection, research, recreational use, and environmental education.

The management program for this preserve includes: (1) collecting, cataloging, and providing information on the ecological functions and economic importance of the natural systems and resources within the preserve; (2) overseeing those activities that affect the natural resources and their natural function within the preserve; (3) ensuring that accurate biological and physical information is considered in permit-related issues and planning decisions; (4) ensuring that all statutes and rules regarding the preserve's natural resources are followed and that violations are enforced by the appropriate authorities; (5) conducting site surveys for specific activities; (6) coordinating with other resource management and enforcement agencies; (7) educating the public on the inherent ecological and economic values of the natural resources associated with the preserve; (8) conducting or cooperating with other entities to conduct pertinent research projects; and (9) developing a comprehensive management program that can be periodically updated.

Coordination with other agencies and entities is key to the successful implementation of a management program for the aquatic preserve. Many agencies and governmental entities outside the Bureau of Submerged Lands have regulatory responsibility and enforcement authority over the natural resources associated with the preserve, both within and outside of the preserve boundaries.

The Department of Environmental Regulation and the St. Johns River Water Management District have jurisdiction over dredge and fill activities, and stormwater management. Both of these activities can have a detrimental impact upon the resources within the preserve. Marion County, through the broad home rule powers afforded local governments and the Growth Management Act, regulates the land use that occurs on the privately owned uplands adjacent to and surrounding the aquatic preserve. The Florida Game and Fresh Water Fish Commission has enforcement powers for wildlife regulations, dredge and fill violations, hazardous material discharges, and other activities that are deleterious to the resources within the aquatic preserve.

This section outlines goals, objectives, and actions to implement a management program for the Oklawaha River Aquatic Preserve.

The resource management goals for aquatic preserves are specified in Section 18-20.001, F.A.C., which states:

" (1) All sovereignty lands within a preserve shall be managed primarily for the maintenance of essentially natural conditions, the propagation of fish and wildlife, and public recreation including hunting and fishing where deemed appropriate by the board and the managing agency.

(2) The aquatic preserves which are described in Chapter 73-534, Laws of Florida, Sections 258.39, 258.391, 258.392, and 258.393, Florida Statutes, future aquatic preserves established pursuant to general or special acts of the legislature, and in Rule 18-20.002, Florida Administrative Code, were established for the purpose of being preserved in essentially natural or existing condition so that their aesthetic, biological and scientific values may endure for the enjoyment of future generations.

(3) The preserves shall be administered and managed in accordance with the following goals:

(a) to preserve, protect, and enhance these exceptional areas of sovereignty submerged lands by reasonable regulation of human activity within the preserves through the development and implementation of a comprehensive management program;

(b) to protect and enhance the waters of the preserves so that the public may continue to enjoy the traditional recreational uses of those waters such as swimming, boating, and fishing;

(c) to coordinate with federal, state, and local agencies to aid in carrying out the intent of the Legislature in creating the preserves;

(d) to use applicable federal, state, and local management programs, which are compatible with the intent and provisions of the act and these rules, and to assist in managing the preserves;

(e) to encourage the protection, enhancement, or restoration of the biological, aesthetic, or scientific values of the preserves, including but not limited to the modification of existing man-made conditions towards their natural condition, and discourage activities which would degrade the aesthetic, biological, or scientific values, or the quality, or utility of a preserve, when reviewing applications, or when developing and implementing management plans for the preserves;

(f) to preserve, promote, and utilize indigenous life forms and habitats, including but not limited to: sponges, soft coral, hard corals, submerged grasses, mangroves, saltwater marshes, freshwater marshes, mud flats, estuarine, aquatic and marine reptiles, game and non-game fish species, estuarine, aquatic, and marine invertebrates, estuarine, aquatic, and marine mammals, birds, shellfish and mollusks;

(g) to acquire additional title interests in lands wherever such acquisitions would serve to protect or enhance the biological, aesthetic, or scientific values of the preserve;

(h) to maintain those beneficial hydrologic and biologic functions, the benefits of which accrue to the public at large. "

In order to implement the overall goals of resource management within the aquatic preserve as specified by Chapter 18-20, F.A.C., and address the previously listed management initiatives, the following goals must be reached: (1) developing and maintaining current, detailed resource inventories; (2) assessing the impact of human activities on the resources within the preserve; (3) develop reasonable regulation, when and where necessary, to protect the resources and address specific problems within the preserve; (4) establishing habitat restoration programs where needed; (5) coordinating and cooperating with other agencies in water quality improvement, research, and system-wide management; (6) environmental education of the public utilizing the preserve as to the function and importance of the preserve; and, (7) providing for reasonable recreational use of the preserve.

For all of the following goals, objectives and tasks, the Department of Natural Resources will, when appropriate and practical, participate with other agencies and organizations dedicated to protecting the local resources. In order to avoid duplication of effort the Department will initiate programs only when they do not overlap or compete with programs operated by other governmental agencies or non-profit corporations.

A. RESOURCE MANAGEMENT AND INVENTORY

The resource management goals for the aquatic preserve are to: (1) determine the extent and condition of the resources within the preserve; (2) identify sources of degradation or adverse impact to those resources; and, (3) restore degraded or altered areas to their natural condition as practicable.

GOAL 1: DEVELOP AND MAINTAIN RESOURCE INVENTORIES

Objective 1.1: Develop and maintain an inventory of the plant communities found within the preserve by December 1993.

Task 1.1.1: Conduct an inventory of the plant communities within and immediately adjacent to the aquatic preserve. This inventory should include the aquatic, wetland, and upland plant communities found within and adjacent to the preserve. The diversity and relative health of the communities should be noted so as to allow for comparison to later inventories. This inventory shall be conducted once every three years.

Task 1.1.2: The database generated from this inventory will be used to create biological resource maps and inventory files.

Objective 1.2: By June 1994 an inventory of listed species, both plant and animal species known to inhabit or that have a high probability of inhabiting the preserve, and their habitats will be established.

Task 1.2.1: Conduct an inventory of listed species and their habitats by using data from existing literature and current research studies, if available. This inventory shall be conducted once every three years.

Task 1.2.2: The database generated from this inventory will be used to create biological resource maps and inventory files.

GOAL 2: ASSESS THE EFFECT OF HUMAN ACTIVITIES AND CUMULATIVE IMPACTS

Objective 2.1: By December 1992 an assessment of the effects of human activities upon the natural resources within the preserve shall be conducted. The effects of human activities outside of the preserve that have direct bearing upon the preserve will also be assessed.

> Task 2.1.1: Conduct a survey and assessment of the human activities within the preserve to determine if there is a direct relationship between these activities and diminution of the function, quality, extent, or health of the natural resources within the aquatic preserve.

Objective 2.2: By June 1993 a survey and assessment of the cumulative impacts of human activity upon on the natural resources within the preserve shall be conducted.

> Task 2.2.1: Conduct a survey of all docks, dredged areas, eroded shoreline areas, boat ramps, landings, and other applicable human uses and impacts within the preserve.

Objective 2.3: By August 1993 a report shall be prepared assessing the effects and cumulative impacts of human activities upon the aquatic preserve.

> Task 2.3.1: Prepare a report utilizing the information gathered for Objectives 2.1 and 2.2 that assesses and summarizes the effects and cumulative impacts of human activities within and outside of the aquatic preserve that affect the preserve.

GOAL 3: RESTORE DEGRADED HABITAT AND ADVERSELY AFFECTED AREAS

Objective 3.1: By December 1993, areas in need of restoration or stabilization within the aquatic preserve will be identified.

> Task 3.1.1: All areas in need of restoration will have appropriate restoration plans prepared for the sites. The plans will specify a schedule for completion. Restoration utilizing vegetation native to the preserve will be given preference to utilization of structural alternatives such as rip-rap or retaining walls in the case of shore stabilization, where practicable.

B. RESOURCE PROTECTION

In order to maintain the biological integrity of the aquatic preserve, it is imperative to protect the resources that are within the preserve and the resources that comprise the entire system. The primary focus of the resource protection section is the protection of the various habitats and communities that make up the preserve. The goals of the aquatic preserve program with regard to resource protection include: (1) protection of the existing resources within the preserve; (2) protection of habitat of listed species; (3) development of management strategies or regulations to address the adverse impacts and cumulative impacts of human activities affecting the resources within the preserve.

GOAL 1: PROTECTION OF RESOURCES WITHIN THE PRESERVE

Objective 1.1: Potential damage to submerged and emergent vegetation will be minimized through the review of applications for use of state-owned land in the aquatic preserve.

Task 1.1.1: Field staff will develop a written policy describing a scientifically based, standardized method to inventory the submerged and emergent biological resources at the proposed project site. At a minimum, this policy will contain the following information:

a) The area to be surveyed:
   1) will be described as a polygon, and
   2) will include the proposed location of the activity/structure and the adjacent area surrounding the project. The size of this adjacent area shall be determined by the methods described in the written policy.

b) How the survey is to be performed:
   1) Two areas within the survey area will be assessed:

      i. the submerged bottom, including:
         * a description of all communities/habitats,
         * a description of the bottom type,
         * depth profiles, and
         * a physical description of the surrounding waterbody;

      ii. the shoreline (where appropriate), including:
         * a description of the vegetation,
         * a description of any existing structures,
         * notation of any nesting birds, and
         * notation of any designated species.

Task 1.1.2: Coordinate with the appropriate regional DNR planner in order to process the field staff comments in a timely manner.

Task 1.1.3: Coordinate with other appropriate agencies that have regulatory authority or review responsibility for these projects.

Objective 1.2: Ensure that structures and projects that have been authorized are in compliance with the authorized conditions.

Task 1.2.1: Coordinate with the appropriate regional DNR planner to receive copies of all letters of consent, easement agreements, lease agreements, and other forms of authorizations.

Task 1.2.2: Report variations from the authorized conditions to the appropriate DNR enforcement agent.

Task 1.2.3: Coordinate with other appropriate agencies that have regulatory authority or review responsibility for these projects.

Objective 1.3: Ensure that structures and projects that have been built or are occurring have been authorized.

Task 1.3.1: Report activities that do not appear to have been authorized to the appropriate DNR enforcement agent.

Task 1.3.2: Coordinate with other appropriate agencies that have regulatory authority or review responsibility for these projects.

GOAL 2: PROTECTION OF LISTED SPECIES AND THEIR HABITAT

Objective 2.1: Ensure that listed species and their habitats are given maximum protection through the permit-review process.

Task 2.1.1: Recommend modifications to proposed projects on state-owned submerged land in order to protect the habitat of listed species.

Task 2.1.2: Field staff will coordinate with the Florida Game and Fresh Water Fish Commission when the habitat of listed species or "significant use areas" could be affected by proposed activities.

Objective 2.2: Develop management strategies, by August 1994, to enhance and protect listed species and their habitat.

Task 2.2.1: Field staff will utilize the inventory of listed species and their habitat to identify the areas where listed species are being adversely affected.

Task 2.2.2: Management strategies, restoration plans, or regulations will be developed and timely implemented to mitigate or remove the identified adverse impacts upon listed species.

GOAL 3: MINIMIZE THE ADVERSE AFFECTS OF HUMAN ACTIVITIES

Objective 3.1: Ensure that human use of the preserve does not create adverse impacts or deleteriously affect the resources within the preserve.

Task 3.1.1: Based upon the information gathered in the management surveys, assessments, and inventories, determine the extent of identified problem areas.

Task 3.2.2: Develop management strategies or regulations to mitigate or remove the cause of the identified adverse impacts or effects.

C. COORDINATION, ENHANCEMENT, AND, IMPROVEMENT

The Oklawaha River Aquatic Preserve is one part of a much larger river system that traverses several political boundaries and falls under multiple agency jurisdictions. In order to successfully implement protection, enhancement, restoration, or improvement measures, coordination with these political entities and agencies is necessary. Therefore, the goals of the aquatic preserve management program should be focused upon coordinating and cooperating with other agencies and entities in assessing, improving, and maintaining conditions that are conducive to preserving the resources within the preserve.

GOAL 1: IMPROVE WATER QUALITY WITHIN THE PRESERVE

Objective 1.1: Coordinate with DER, the Water Management District, the Corps of Engineers, and local governments to improve water quality in the preserve.

Task 1.1.1: Coordinate with the St. Johns River Water Management District, DER, and local governments toward improving the management of surface water and stormwater discharges into the aquatic preserve.

Task 1.1.2: Coordinate with the St. Johns River Water Management District regarding the restoration activities that the District is conducting in the upper

reaches of the Oklawaha River and the Oklawaha Basin to improve the quality of the water flowing into the preserve.

GOAL 2: COORDINATE WITH LOCAL GOVERNMENTS ON LAND USE PLANNING

Objective 2.1: Coordinate with local planning departments, regional planning councils, and the Department of Community Affairs to develop, revise, and evaluate local government comprehensive plans and plan amendments.

Task 2.1.1: Establish the role of the aquatic preserve manager as the field representative for DNR Aquatic Preserves with local governments.

Task 2.1.2: Contact local planners to assist in the development of policies and ordinances that regulate activities affecting state-owned submerged lands.

D. RESEARCH AND ENVIRONMENTAL EDUCATION

Effective management, including enhancement and restoration, of any biological system relies almost entirely on information as to how that system functions. Research is the foundation upon which this information is based. Therefore, the goals of the research program within the Bureau of Submerged Lands and Preserves are primarily directed toward applied research.

The goals of the research program for aquatic preserves in general are: (1) to gain a better understanding of those factors that are essential to the continued biological integrity of the major habitats within the aquatic preserve; and (2) to gain a better understanding of those factors that govern the continued survival and propagation of designated species that use the aquatic preserve for any portion of their life cycle.

Riverine systems in general and the Oklawaha River in particular have been the subjects of extensive research and data collection. Much information concerning the factors affecting the biological integrity of the preserve can be obtained through a literature search and from knowledgeable people who have themselves conducted research within the preserve. There may be, however, aspects of riverine systems and the Oklawaha River system that would bear further inspection. As a product of the resource management and monitoring program, topics and areas of needed research may be identified.

The integrity of the biological system within the preserve can be affected, both directly and indirectly, by the public's enjoyment of the preserve. Without a

biologically "healthy" river system, water quality will deteriorate, fisheries will fail due to loss of habitat, and many other species of both plants and animals will be adversely affected. One of the primary aims of the aquatic preserve program is to educate the public as to the importance of the factors that affect the integrity of the preserve. This public is composed of a number of segments: (1) students [e.g., elementary, college]; (2) waterfront property owners; (3) visitors and new residents; (4) user groups; (5) special interest groups; and (6) local, regional, and state government agencies that are involved in making decisions regarding the preserve.

The goal of the environmental education section is to instruct individuals as to the importance of preserving natural and cultural resources so they may consider all issues prior to making decisions and beginning activities that affect these resources. The purpose of this management plan section is to educate the public in the hopes that they will become responsible users of the preserve. Two DNR publications, Environmental Education in Florida: Needs and Goals, and A Guide for Environmental Education, are references available to aid in accomplishing this goal.

GOAL 1: EDUCATE THE PUBLIC TOWARD WISE RESOURCE USE

Objective 1.1: Provide information to existing environmental education programs at public and private schools and coordinate with other local educational centers.

> Task 1.1.1: Notify the Marion County School Board of the aquatic preserve's environmental education efforts and the availability of its staff to assist or provide guidance for their existing educational programs.
>
> Task 1.1.2: Conduct off-site classroom instruction and on-site field trips in the preserve.
>
> Task 1.1.3: Coordinate with and assist the staff of the Silver River Museum to provide support for the museum's programs and interpretive talks.

Objective 1.2: Produce educational literature and materials that inform the public of the Oklawaha River Aquatic Preserve's natural and cultural resources and the importance of preserving and protecting these resources.

> Task 1.2.1: Develop brochures, pamphlets, and/or booklets that describe to the public; (1) the purpose of and management activities conducted for the aquatic preserve; and (2) general information on the preserve's ecosystem. If feasible, this task will include video presentations.

Objective 1.3: Provide informal workshops to inform other environmental educators on the preserve's natural resources.

Task 1.3.1: Conduct instructional workshops designed to teach other environmental educators.

Objective 1.4: Establish an on-site environmental education center.

Task 1.4.1: Coordinate with the Marion County School Board and the staff of the Silver River Museum to contribute information and materials relevant to the preserve to the environmental learning center at the Silver River Museum.

E. RECREATIONAL USE OF THE AQUATIC PRESERVE

As stated in Chapter 18-20, F.A.C., aquatic preserves are to be managed to provide public recreation where appropriate and reasonable to the extent that the resources within the preserves are not adversely affected. A goal of the management program for the aquatic preserve should be to provide for reasonable recreational use of the natural resources within the aquatic preserve.

GOAL 1: PROVIDE FOR REASONABLE RECREATIONAL USE OF THE PRESERVE

Objective 1.1: Determine the feasibility of providing additional low impact access points along the rivers within the aquatic preserve.

Task 1.1.1: Utilizing the data and information from the management surveys, inventories, and assessments that are to be produced for the preserve, a feasibility study will be developed to provide for additional low impact access points within the aquatic preserve. The feasibility studies shall at a minimum address the following:

* present access points and level of use;
* practical locations for new low impact access points, such as visual access and bank fishing;
* the foreseeable impacts and costs that new access points may have;
* the projected beneficial use derived from these new access points;
* the projected detrimental effects that new access may create.

CHAPTER VII

MANAGEMENT COORDINATION NETWORK

This chapter presents a general overview of the various federal, state, regional, and local agencies that regulate or hold any interest in the management or use of the Oklawaha River Aquatic Preserve. A reference matrix of these regulatory programs and their jurisdictions is presented in Table 5. One function of the Aquatic Preserve Program is to coordinate with these agencies to achieve common goals relevant to aquatic preserve management.

A. FEDERAL AGENCIES

A number of federal agencies have property interests, construction activities, regulation programs, research activities, and land/wildlife management programs that deal either directly or indirectly with the aquatic preserves. These federal agencies include: U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Geological Survey, and the U.S. Fish and Wildlife Service.

The **U.S. Army Corps of Engineers (COE)** has jurisdiction over inland navigable waters under the Rivers and Harbors Act of 1899. A revision of the Rivers and Harbors Act in 1968 extended the Corps' jurisdiction, allowing the agency to consider the fish and wildlife, conservation, pollution, aesthetics, ecology, and other relevant factors of a project. The Corps Regulatory Program expanded in 1972 with the Federal Water Pollution Control Act Amendments, also known as the Clean Water Act (CWA). Section 404 of this act requires the Corps to control dredge and fill activities. In 1977, amendments to the CWA extended this jurisdictional responsibility to wetlands. The Corps also contributes 50% of the funds reimbursed to the Water Management Districts by the Department of Natural Resources for aquatic plant control.

The **U.S. Environmental Protection Agency (EPA)** has jurisdiction over surface waters in the state. Enforcement authority was given under the Clean Water Act of 1968 and broadened under the 1977 revision. In general, the EPA is responsible for pollution control and abatement, including: air, water, noise, solid waste, toxic waste, and radiation. The agency reviews permits issued by the Department of Environmental Regulation for the treatment, disposal, and storage of hazardous wastes. Authority is divided between EPA and USCG regarding the discharge of oil or hazardous substances into surface water.

The **U.S. Geological Survey (USGS)** performs surveys and research pertaining to topography, hydrology, and geology as well as monitoring the mineral and water resources of the Oklawaha River region.

The **U.S. Fish and Wildlife Service (USFWS)** is responsible for fish and wildlife and their habitat as authorized in: the Coastal Barrier Resources Act (COBRA), National Environmental Protection Act, Migratory Bird Act, Endangered Species Act, and the Fish and Wildlife Coordination Act (FWCA). Under provision of the FWCA, USFWS must be consulted before COE can submit a plan for Congressional approval. The USFWS comments on the impacts of proposed projects on endangered species, migratory birds, and other fish and wildlife and their habitats. They are directed to prepare environmental impact assessments or statements for proposed projects by the COE and are authorized to issue "Jeopardy Opinion" against any proposed project which will negatively affect an endangered species (Barile et al., 1987).

In accordance with the federal consistency review process, the Bureau of Submerged Lands and Preserves reviews the federal programs and activities as to how they affect the objectives of the aquatic preserve management program. This review is coordinated through the Florida Department of Environmental Regulation's Office of Coastal Management in order to enforce the provisions of the Federal Coastal Zone Management Act of 1972, as amended.

B. STATE AGENCIES

Eight state agencies have programs that affect the resources or regulate activities within the aquatic preserves: Department of Natural Resources, Department of Environmental Regulation, Department of Health and Rehabilitative Services, Game and Freshwater Fish Commission, Department of Community Affairs, Marine Fisheries Commission, Department of State, and the Department of Transportation.

The **Department of Natural Resources (DNR)** areas of responsibility include state lands, sovereignty submerged lands, and marine resources (e.g., marine research projects, sea turtle and manatee protection). The Florida Marine Patrol enforces safe boating laws as well as commercial and recreational fishing regulations. Authority granted under Chapters 18-20, and 18-21, F.A.C., gives DNR responsibility to regulate commercial and residential docks and other structures and activities conducted on submerged lands. Under Chapter 16C-20, F.A.C., DNR has responsibility for various aquatic plant control programs, including permit review for mechanical, biological, and chemical control of aquatic plants. Permits are also necessary under Chapter 16C-52, F.A.C., "Aquatic Plant Importation, Transportation, Cultivation, and Possession", for any persons cultivating, revegetating, or collecting aquatic plants.

The Department of Natural Resources Division of Recreation and Parks has authority under Florida Statute 258 and Florida Administrative Code Rule 16D-2 to manage the portions of the Oklawaha and Silver Rivers that fall within the Silver River State Park. The Division of Recreation and Parks has an intra-DNR

management agreement (agreement #745-0017) that authorizes the Division to manage submerged areas that adjoin DNR jurisdictional lands.

The **Department of Environmental Regulation (DER)** has a broad range of responsibilities and receives its authority from State Law and some delegated from EPA. Generally, the DER responsibilities include water management, water quality, potable water, air quality, coastal management, wetland protection, power plant siting, hazardous and solid wastes.

These responsibilities are accomplished through the following regulatory mechanisms: (1) establishment of state standards designed to protect natural systems and prevent harmful pollutants from entering these systems; (2) application of these standards through the permitting of potential sources of pollution and monitoring discharges for compliance; and (3) initiation of enforcement action for non-compliance with these standards.

The DER's rules significant to the aquatic preserve management program are Chapters 17-301, 17-302, 17-4, and 17-312, F.A.C. Authority for these rules is based in Chapter 403, F.S. Chapter 17-301 and 17-302, F.A.C., addresses water quality standards with the most stringent category being "Outstanding Florida Waters" (OFW). The Oklawaha River and the Silver River are both OFW's within the aquatic preserve. Chapter 17-4, F.A.C., addresses permit requirements and Chapter 17-312, F.A.C., covers dredge and fill activities.

Section 253.77, F.S., as amended by the Warren S. Henderson Wetlands Protection Act of 1984, requires that any person requesting the use of state-owned lands shall have prior approval of the Trustees. As a result of this amendment, an interagency agreement between DNR and DER provides for comments from DNR staff, on behalf of the Board of Trustees, into the DER permitting process for proposed activities in aquatic preserves.

The **Department of Health and Rehabilitative Services (HRS)** has responsibilities to protect the public's health by overseeing functions that involve water supply, on site sewage disposal, septic tank cleaning, solid waste control, and hazardous wastes. Authority for these responsibilities is found in Chapters 154, 381, and 386, F.S., and in the 10D Series of F.A.C., known as the "Sanitary Code." Within each county, HRS functions as the county's health department and oversees these jurisdictional responsibilities.

The **Game and Fresh Water Fish Commission (GFWFC)** authority is provided in the rules and regulations of Chapters 39.101 and 39.102, F.A.C. This authority involves the implementation of specific regulations and their enforcement for protecting all wildlife and their habitats. As such, the GFWFC is the state coordinator for species designated for protection in Florida.

The **Department of Community Affairs (DCA)** and the Regional Planning Councils are authorized under Section 380.06, F.S., for administering the Development of Regional Impact (DRI) review program. The DRI process was established to provide a review and monitoring procedure for development projects potentially affecting the health, safety or welfare of citizens of more than one county.

Additionally, the DCA designates Areas of Critical State Concern (ACSC). These designations are intended to protect the areas of the state where development has endangered or may endanger resources of regional or statewide significance. Under an ACSC designation, the local governments are required to submit new or existing land development regulations to DCA for review and approval. According to Section 380.05, F.S., the entire land development process will require the state's supervision until that local government modifies its land development practices to conform to the principles guiding development within an ACSC.

The DCA also oversees the development of Local Government Comprehensive Plans (LGCP) for both counties and municipalities, as required by the Local Government Comprehensive Planning and Land Development Regulation Act, Chapter 163, Part II, F.S. Subsection 163.3203(5), F.S., provides that DCA shall adopt rules for the review of local government land development regulations. Within one year of submission of comprehensive plans for review by DCA, local governments are required to adopt land development regulations which are consistent with their comprehensive plans, pursuant to Subsection 163.3167(2), F.S. The two elements within these plans that bear most directly on the aquatic preserve program are the Future Land Use Element and the Conservation Element.

The **Department of State (DOS), Division of Historical Resources (DHR)** has the responsibility granted under Chapter 267, F.S., regarding the preservation and management of Florida's archaeological and historical resources. This responsibility includes those cultural resources located on state-owned lands, including aquatic preserves.

The **Department of Transportation (DOT)** has responsibilities that include right-of-way and surface water runoff in the areas of roads, bridges, and causeways. The DOT also updates a state-wide aerial photographic survey every four years, rotating on a district basis.

C. REGIONAL AGENCIES

At the regional level, the management coordination network includes the St. Johns River Water Management District, and the Withlacoochee Regional Planning Council. These organizations conduct activities that are on a broader scale than those of local governments.

The **St. Johns River Water Management District (SJRWMD)** was created and is governed by provisions of Chapter 373, Florida Statutes. Chapter 40C F.A.C. contains the rules of the District including those rules governing certain activities in wetlands and other natural resources. Also included in the rules in these chapters are mechanisms to implement the surface water management permit system mandated in Part IV of Chapter 373, F.S.

SJRWMD has jurisdiction over and administers the permitting program for water use, well construction, stormwater discharge, surface water management, groundwater withdrawals, water level control and provides control of exotic plants (primarily hydrilla and water hyacinths) in cooperation with the COE.

It is the intent of the Florida Legislature (Chapter 87-97, Section 1-6, Laws of Florida) through the Surface Water Improvement Management (SWIM) Act, that the water management districts "design and implement plans and programs for the improvement and management of surface water." The St. Johns River Water Management District has adopted the Upper Oklawaha River Basin SWIM Plan which addresses restoration and protection of the headwater lakes and upper basin of the Oklawaha River. Restoration of the historic river channel and floodplain is beginning at Sunnyhill Farm and will soon begin at Oklawaha Farms.

The **Withlacoochee Regional Planning Council (WRPC)** serves as a regional planning body for county and municipal governments. Its many functions include: (1) providing assistance to local governments with planning expertise, (2) serving as the regional representative for the DRI review process, (3) serving as a regional clearinghouse for state and federal projects and programs, (4) assisting local governments in securing grants, (5) conveying information from the local governments to the state and federal levels, and (6) preparing and administering the Regional Comprehensive Policy Plan.

D. LOCAL AGENCIES

The Oklawaha River Aquatic Preserve is located entirely within Marion County. The Marion County Board of County Commissioners have final authority for land use decisions for the area surrounding the aquatic preserve. The Board of County Commissioners also have the authority to implement ordinances and regulations that directly affect the preserve. Table 6 lists the ordinances adopted by Marion County that have regulatory implications for the aquatic preserve.

TABLE 5 : MANAGEMENT COORDINATION NETWORK

LOCAL AGENCIES

LGT	Local Governments (Cities, Towns, Municipalities)
CGT	County Governments
LDD	Local Drainage Districts
MCD	Mosquito Control Districts
ICD	Inlet Commissions/Districts
SWC	Soil and Water Conservation Districts

STATE AGENCIES

DCA	Florida Department of Community Affairs
DER	Florida Department of Environmental Regulation
DNR	Florida Department of Natural Resources
GFC	Florida Game and Freshwater Fish Commission
HRS	Florida Department of Health and Rehabilitative Services
DOS	Florida Department of State
DOT	Florida Department of Transportation
FMP	Florida Marine Patrol
FSG	Florida Sea Grant
MFC	Marine Fisheries Commission
DAC	Florida Department of Agriculture and Consumer Services

REGIONAL AGENCIES

RPC	Regional Planning Council
WMD	Water Management Districts
FIN	Florida Inland Navigation District

FEDERAL AGENCIES

CG	United States Coast Guard
COE	United States Army Corps of Engineers
EPA	United States Environmental Protection Agency
FWS	United States Fish and Wildlife Service
NMF	National Marine Fisheries Service
GS	United States Geological Survey

Source: modified from the Indian River Lagoon Joint Reconnaissance Report, 1987

	Local						Regional				State										Federal						
	LGT	CGT	LDD	MCD	ICD	SWC	RPC	WMD	FIN	DAC	DCA	DER	DNR	GFC	HRS	DOS	DOT	FMP	FSG	MFC	CG	COE	EPA	FWS	NMF	GS
Dredge and Fill Permitting	●	●						●	●			●	●	●						●	●	●	●	●		●
Docks, Fishing Piers, Seawalls	●	●										●	●									●				
Marinas	●	●					●				●	●	●							●		●		●		
Submerged Lands Management									●				●													
Habitat Protection	●	●					●	●			●	●	●	●				●		●		●		●	●	
Mangroves/Wetlands Protection	●	●					●	●			●	●	●	●								●		●		
Seagrass Protection	●	●					●	●			●	●	●									●		●	●	
Habitat Restoration		●						●			●	●	●	●			●					●		●		
Mangroves/Wetlands Restoration		●		●				●			●	●	●									●		●		
Seagrass Restoration								●			●	●	●									●		●		●
Resource Inventory							●	●	●		●	●	●	●					●	●				●	●	
Manatees/Porpoises	●	●					●				●		●											●	●	
Endangered Species	●	●					●				●		●	●			●	●	●	●	●			●	●	●
Shellfish/Aquaculture		●		●						●		●	●													
Public Awareness/Education		●						●	●		●	●	●	●				●	●	●	●	●	●	●	●	
Research				●				●				●	●	●					●						●	
Fisheries Research				●							●		●	●					●	●				●	●	
Fisheries Management				●							●		●						●	●				●	●	
Recreational Fishing											●		●	●				●	●	●				●	●	
Commercial Fishing											●		●					●	●	●				●	●	
Wildlife Management								●			●			●				●		●		●		●	●	
Mosquito Impoundments		●		●							●		●									●				
Historical/Archeological Sites	●	●					●				●		●			●										
Water Quality	●	●		●		●	●	●			●	●	●		●			●					●	●		
Nonpoint Source Pollution	●	●				●	●	●			●	●	●		●		●					●	●	●		
Point Source Pollution	●	●					●	●			●	●	●		●							●	●	●		
Oil/Chemical Spills		●					●	●			●	●	●					●			●	●	●	●		
Drainage/Freshwater Control	●	●	●			●	●	●			●	●	●									●		●		
Emergency Response	●	●					●				●	●	●	●				●								
Upland Development	●	●					●	●			●															
Land Use Planning	●	●					●				●	●														
Navigational/Boating	●	●			●		●		●				●	●	●			●	●		●	●		●		
Recreational Areas	●	●					●		●				●					●	●			●		●		●
Bridges and Roads		●					●	●			●	●	●				●				●	●				●

Table 6. Marion County Ordinances

Ordinance	Regulation
71-2	Prohibits the dumping of trash in any water body in Marion County.
84-16	Empowers the Board of County Commissioners to set speed limits for motorboats on water bodies within Marion County.
86-11	Prohibits SCUBA diving in the headwaters of the Silver River.

CHAPTER VIII

STAFFING AND FISCAL NEEDS

For an aquatic preserve management program to be meaningful, adequate staff and fiscal needs must be provided for in order to implement the management plan. Hopefully much of the staff needs for the Oklawaha River Aquatic Preserve can be met by existing personnel. The Lake Weir Aquatic Preserve is near the Oklawaha River Aquatic Preserve. It is suggested that the field staff charged with management of the Lake Weir Aquatic Preserve also assume management authority for the Oklawaha River Aquatic Preserve, if the additional management responsibility can be adequately met. If not, then additional personnel must be provided for. If it is feasible for the Lake Weir staff to assume the Oklawaha River Aquatic Preserve management, then additional operating expenses will be incurred by that field office and must be provided for.

An estimate of the additional expenses to be incurred by the Lake Weir Preserve staff due to assuming management of the Oklawaha River Preserve is as follows:

SALARY/OVERTIME	
Environmental Specialist	$ 5,000
Secretary	$ 2,000
OPERATING CAPITAL OUTLAY	
Office Equipment	$ 2,000
Education Materials	$ 2,500
OPERATING EXPENSES	
Vehicle Maintenance, Fuel	$ 2,000
Boat/Motor Maintenance, Fuel	$ 1,500
Office/Education Supplies	$ 1,000
TOTAL ESTIMATE	$ 16,000

CHAPTER IX

RESOURCE AND PROGRESS MONITORING PROGRAM

To ensure that Oklawaha River Aquatic Preserve management plan is effectively implemented, it will be necessary to institute a program to not only monitor the resources within the preserve, but to also monitor and evaluate the effectiveness of the management program and amend the program as necessary.

Two programs that will need to be implemented toward this end are: (1) monitor changes in the biological resources over time, and (2) record the accomplishments achieved and goals and objectives met by the Oklawaha River Aquatic Preserve Program. These monitoring programs will consist of the following:

A. RESOURCE MONITORING

To monitor changes in the natural resources, a database system that is readily edited and changed is desirable. An example of such a system is a geographic information system (GIS). A GIS is a computer-based system that is used to capture, edit, display, and analyze geographic information. The first GIS programs were developed about 20 years ago to manage large collections of natural resource and environmental information. Since their development, they have been used in other areas such as utilities mapping, inventory management, and land use planning. Development of a GIS database for the Oklawaha River Aquatic Preserve will greatly facilitate the efficacious collection, manipulation, and analysis of natural resource data for the preserve.

Development and maintenance of a GIS system will include the periodic inventory, compilation, and analysis of temporal and spatial data concerning the present state of the natural resources within the preserve. Historical aerial photography can be computerized for comparison with later data to conduct a temporal analysis of resource abundance. Detailed monitoring of revegetation/restoration efforts can also be computer analyzed. The on-line access to these natural resource databases will facilitate informed management decisions concerning the use and protection of submerged lands and their resources. Cooperation and file sharing is possible with other agencies handling such data with identical and similar systems.

B. PROGRESS MONITORING

For the management plan to be effectively implemented, it is necessary to monitor the accomplishments and progress of the Oklawaha River Aquatic Preserve

Program on a regular basis. The purpose of this element is to detail the program's accomplishments in its pursuit of the goals and objectives outlined in Chapter VI. This information, to be submitted in a report once every three years to the Bureau Chief, will include an update of the biological resources' status within the preserve as well as identifying current human activities. This report will detail the following:

1. The state of the natural environment and resources of the aquatic preserve.

    a. Through the use of resource inventories and the GIS system, document the status of each biological resource.

    b. Identify the current number of structures/activities either started or completed in the preserve. These structures/activities will be categorized as follows:

        1) authorized projects (e.g., private residential single docks, multi-family fishing piers),
        2) unauthorized projects, and
        3) projects not in compliance with the original authorization.

    c. Identify the current impacts of recreational use of the preserve upon the natural resources within the preserve.

2. A list of accomplishments of those tasks outlined in Chapter VI.

    a. Each task will be listed and the activities required to complete that task will be detailed. If the task was not done or not completed, an explanation will be given. If the explanation was due to insufficient funding/staff, then this fact will be detailed so that an update of Chapter VII can be made.

3. Any new goals and/or objectives will be reflected in an update of Chapter VI.

REFERENCES

Bigelow, G.E. History of Man in the Oklawaha Valley. Pp. 47-49 in Carr, M.H., Dasmond, R.F., Partington, W.M., and Robertson, W.B. (eds.). Environmental Impact of the Cross Florida Barge Canal with Special Emphasis on the Oklawaha Regional Ecosystem. Florida Defenders of the Environment, Gainesville, Florida. 1970.

Environmental Research and Technology, Inc. Cross Florida Barge Canal Restudy Report, Benthic Macroinvertebrates and Plankton Communities of the Associated Aquatic Systems for the Proposed Cross Florida Barge Canal, Vol. II. Prepared for U.S. Army Corps of Engineers, Jacksonville District. Jacksonville, Florida. 1976.

Florida Chapter Soil and Water Conservation Society. 26 Ecological Communities of Florida. Revised July 1989.

Florida Defenders of the Environment. An Outstanding Florida Water Petition for the Oklawaha River. March 1987.

Florida Department of Natural Resources. Aquatic and Wetland Plants of Florida. Bureau of Aquatic Plant Research and Control. Tallahassee, Florida. 1986.

Florida Department of Natural Resources. Florida Rivers Assessment. December 1989.

Florida Game and Fresh Water Fish Commission. Cross Florida Barge Canal Restudy Report, Wildlife Study. Vol. I. Prepared for U.S. Army Corps of Engineers, Jacksonville District, Jacksonville, Florida. 1976a.

_____. Cross Florida Barge Canal Restudy Report, Fisheries, Vol. II. Prepared for U.S. Army Corps of Engineers, Jacksonville District, Jacksonville, Florida. 1976b.

_____. Cross Florida Barge Canal Restudy Report, Endangered, Threatened, Rare, Special Concern, Status Undetermined and Biologically Sensitive Species. Prepared for U.S. Army Corps of Engineers, Jacksonville District, Jacksonville, Florida. 1976c.

_____. Addendum Report, March. Appendix 43 in Final Environmental Statement: Proposal for the Oklawaha River, Ocala National Forest, 3 Vol. U.S. Forest Service, Washington, D.C. 1972.

_____. Official List of Endangered and Potentially Endangered Fauna and Flora in Florida. Tallahassee, Florida. 1986.

Florida Natural Areas Inventory and the Florida Department of Natural Resources. Guide to the Natural Communities of Florida. February 1990.

Hand, Joe, Victoria Tauxe, Mark Friedman, Leland Smith. 1990 Florida Water Quality Assessment 305(b) Technical Appendix. State of Florida Department of Environmental Regulation, Water Quality Monitoring and Quality Assurance Section, Bureau of Water Quality Management, Division of Environmental Programs, Tallahassee, Florida. June 1990.

Joyce Environmental Consultants, Inc. Cross Florida Barge Canal Restudy Report, Aquatic Vegetation Study. Prepared for U.S. Army Corps of Engineers, Jacksonville District, Jacksonville, Florida. 1976.

Lake County Water Authority. A Review of Selected Lake County Water-Related Resources with Recommendations for Preservation and Protection. Tavares, Florida. 1985.

Lanier, S. Florida: Its Scenery, Climate, and History. J.B. Lippincott and Company. Philadelphia, Pennsylvania. 1876.

Layne, J.N. Terrestrial Wildlife of the Oklawaha Regional Ecosystem. Pp. 35-42 in Carr, M.H., Dasmond, R.F., Partington, W.M., and Robertson, W.B. (eds.). Environmental Impact of the Cross Florida Barge Canal with Special Emphasis on the Oklawaha Regional Ecosystem. Florida Defenders of the Environment. Gainesville, Florida. 1970.

Lugo, A., and A. Carr. Vegetation of the Oklawaha Regional Ecosystem. Pp. 29-33 in Carr, M.H., Dasmond, R.F., Partington, W.M., and Robertson, W.B. (eds.). Environmental Impact of the Cross Florida Barge Canal with Special Emphasis on the Oklawaha Regional Ecosystem. Florida Defenders of the Environment, Gainesville, Florida. 1970.

McKinney, S. P., L. Snyder, and W. Borokowski. 1983-1984 Fish Management Annual Progress Report. Florida Game and Fresh Water Fish Commission, Central Region. Ocala, Florida. 1984.

Mitchell, C.B. Paddle-Wheel Inboard. The American Neptune, A Quarterly Journal of Maritime History, April, pp. 115-239. American Neptune, Inc., Salem, Massachusetts. 1947.

Penak, R. W. Fresh-Water Invertebrates of the United States.The Roland Press Co., New York. 1953.

Pratt, H. S. A Manual of Common Invertebrate Animals - Exclusive of Insects. McGraw-Hill Book Co., Inc., New York. 1935.

Reid, G. K. The Native Aquatic Fauna of the Oklawaha River. Pp. 43-46 in Carr, M.H., Dasmond, R.F., Partington, W.M., and Robertson, W.B. (eds.). Environmental Impact of the Cross Florida Barge Canal with Special Emphasis on the Oklawaha Regional Ecosystem. Florida Defenders of the Environment, Gainesville, Florida. 1970.

Stevenson, H.M. Vertebrates of Florida, Identification and Distribution. Florida State University Book, University Presses of Florida. Gainesville, Florida. 1976.

United States Department of Agriculture, Forest Service. Final Environmental Statement: Proposal for the Oklawaha River, Ocala National Forest. Washington, D.C. 1973.

St. Johns River Water Management District. SWIM Plan for the Upper Oklawaha River Basin. 1989.

APPENDIX A

LISTS OF PLANT AND ANIMAL SPECIES

A-1. Aquatic Plants of the Oklawaha

Common Name	Scientific Name
Alligator Weed	Alternanthera philoxeroides
Water Hemp	Amaranthus cannabinus
Carolina Aster	Aster carolinianus
Marsh Marigold	Bidens laevis
Beggar Tick	Bidens mitis
Buttonbush	Cephalanthus occidentalis
Coontail	Ceratophyllum demersum
Water Hemlock	Cicuta maculata
Elephant Ear	Colocasis antiquorum
Spider Lily	Crinum americanum
Water Hyacinth	Eichhornia crassipes
Slender Spikerush	Eleocharis baldwini
Willow Moss	Fontalis sp.
Marsh Hibiscus	Hibiscus moscheutos
Hydrilla	Hydrilla verticillata
Water Pennywort	Hydrocotyle ranunculoides
Whorled Pennywort	Hydrocotyle verticillata
Virginia Willow	Itea virginica
Juncus Rush	Juncus sp.
Common Duckweed	Lemna minor
Water Purslane	Ludwigia palustris
Primrose Willow	Ludwigia peruviana
Southern Pickerelweed	Pontederia cordata
Spatterdock	Nuphar sp.
Maidencane	Panicum hemitomon
Water Lettuce	Pistia stratiotes
Southern Smartweed	Polygonum densiflorum
Smartweed	Polygonum pensylvanicum
Swamp Rose	Rosa palustris
Swamp Dock	Rumex verticillateus
Carolina Willow	Salix caroliniana
Cattail	Typha latifolia
Lizard's Tail	Saururus cernus
Wolfiella	Wolfiella floridana
Vallisneria	Vallisneria americana
Narrowleaf Cattail	Typha angustifolia
Wild Rice	Zizania aquatica
Giant Cutgrass	Zizaniopsis miliacea

Source: Joyce Environmental Consultants (1976).

A-2. Mixed-Swamp Species

Common Name	Scientific Name
Carolina Ash	Fraxinus caroliniana
Pumkin Ash	Fraxinus profunda
Southern Red Maple	Acer rubrum
Poison Ivy	Toxicodendron radicans
Bald Cypress	Taxodium distichum
Florida Elm	Ulmus americana var. floridana
Black Gum	Nyssa sylvatica var. biflora
Virginia Willow	Itea virginiana
Cabbage Palm	Sabal palmetto
Climbing Hydrangea	Decumaria barbara
Dahoon Holly	Ilex cassine
Wax Myrtle	Myrica cerifera
Buttonbush	Cephalanthus occidentalis
Royal Fern	Osmunda regalis
Swamp Bay	Persea palustris
Greenbriar	Smilax sp.
Loblolly Bay	Gordonia lasianthus
Laurel Oak	Quercus laurifolia
Cinnamon Fern	Osmunda cinnamomea
Trumpet Vine	Ludwigia sp.
Elderberry	Sambucus canadensis
Fetterbush	Lyonia lucida
Water Parsnip	Sium suave
Swamp Dogwood	Cornus stricta
Wild Grape	Vitis sp.
Sweet Bay	Magnolia virginiana
Virginia Creeper	Parthenocissus quinquefolia

Sources: Florida Game and Fresh Water Fish Commission (1976a), USDA Forest Service (1976).

A-3. Hydric Hammock Species

Common Name	Scientific Name
Bluestem Palmetto	Sabal minor
Cabbage Palm	Sabal palmetto
Poison Ivy	Toxicodendron radicans
Sweetgum	Liquidambar styraciflua
Greenbriar	Smilax sp.
Red Maple	Acer rubrum
Wax Myrtle	Myrica cerifera
Laurel Oak	Quercus laurifolia
Ironwood	Carpinus caroliniana
Airplant	Tillandsia bartramii
Carolina Ash	Fraxinus caroliniana
Wild Grape	Vitis sp.
Netted Chain Fern	Woodwardia areolata
Fetterbush	Lyonia lucida
Walter Viburnum	Viburnum obovatum
Resurrection Fern	Polypodium polypodioides
Swamp Bay	Persea palustris
Water Hickory	Carya aquatica
Hackberry	Celtis laevigata
Virginia Creeper	Parthenocissus quinquefolia
American Holly	Illex opaca
Rattan Vine	Berchemia scandens
Yellow Jessamine	Gelsemium sempervirens
Beautyberry	Callicarpa americana
Swamp Rose	Rosa palustris
Cedar Elm	Ulmus crassifolia

Sources: Florida Game and Fresh Water Fish Commission (1976a), USDA Forest Service (1976).

A-4. Mesic Hammock Species

Common Name	Scientific Name
White Ash	Fraxinus americana
Bluestem Palmetto	Sabal minor
Cabbage Palm	Sabal palmetto
Sweetgum	Liquidambar styraciflua
Pignut Hickory	Carya glabra
Saw Palmetto	Serona repens
Sparkleberry	Vaccinium arboreum
Water Oak	Quercus nigra
Live Oak	Quercus virginiana
Yellow Jessamine	Gelsimeum sempervirens
Swamp Chestnut Oak	Quercus michauxii
Poison Ivy	Toxicodendron radicans
Wild Grape	Vitis sp.
Partridgeberry	Cassia fasciculata
Greenbriar	Smilax sp.
Resurrection Fern	Polypodium polypoidioides
Beautyberry	Callicarpa americana
Shumard Oak	Quercus shumardii
Laurel Oak	Quercus laurifolia
Virginia Creeper	Parthenocissus quinquefolia
Ironwood	Carpinus caroliniana
Panicum grass	Panicum sp.
Spanish Moss	Tillandsia usneoides
Wild Sarsaparilla	Smilax pumila
Southern Magnolia	Magnolia grandiflora
Wax Myrtle	Myrica cerifera
Blue Palm	Sabal minor
American Holly	Ilex opaca
Southern Red Cedar	Juniperous silicicola
Sumac	Rhus copallina
Winged Elm	Ulmus alata

Sources: Florida Game and Fresh Water Fish Commission (1976a), USDA Forest Service (1976).

A-5. Xeric Hammock Species

Common Name	Scientific Name
Laurel Oak	Quercus laurifolia
Saw Palmetto	Serenoa repens
Wild Grape	Vitis sp.
Sparkleberry	Vaccinium arboreum
Rusty Lyonia	Lyonia ferruginea
Pignut Hickory	Carya glabra
Live Oak	Quercus virginiana var. virginiana
Sand Live Oak	Quercus virginiana var. geminata
Yellow Jessamine	Gelsimium sempervirens
American Holly	Ilex opaca
Resurrection Fern	Polypoides polypodioides
Blueberry species	Vaccinium sp.
Spanish Moss	Tillandsia usneoides
Beautyberry	Callicarpa americana
Greenbriar	Smilax sp.
Myrtle Oak	Quercus myrtifolia
Southern Magnolia	Magnolia grandiflora
Red Bay	Persea borbonea
Scrub Palmetto	Sabal etonia
Wild Olive	Osmanthus americanus
Coontie	Zamia integrifolia
Witch Hazel	Hamamelis virginiana
Deer Tongue	Trilissa odoratissima
Bracken Fern	Pteridium aquilinum
Air Plant	Tillandsia bartramii
Fringe Tree	Chionanthus virinicus
Devil's Walking Stick	Aralia spinosa
Viburnum species	Viburnum sp.

Sources: Florida Game and Fresh Water Fish Commission (1976 a), USDA Forest Service (1976).

A-6. Loblolly Pine Hammock

Common Name	Scientific Name
Loblolly Pine	Pinus taeda
Sweetgum	Liqudambar styraciflua
Cabbage Palm	Sabal palmetto
Water Oak	Quercus nigra
Panicum Grass	Panicum sp.
Wax Myrtle	Myrica cerifera
Greenbriar	Smilax sp.
Elephant's Foot	Elephantopus sp.
Beautyberry	Callicarpa americana
Live Oak	Quercus virginiana var. virginiana
Virginia Creeper	Parthenocissus quinquefolia
Poison Ivy	Toxicodendron radicans
Black Haw	Viburnum obovatum
Saw Palmetto	Serona repens
Winged Elm	Ulmus alata
Wild Grape	Vitis sp.
Trumpet Vine	Ludwigia sp.
Resurrection Fern	Polypodium polypodioides
Partridge Berry	Cassia fasciculata
Persimmon	Diospyros virginiana
Yellow Jessamine	Gelsemium sempervirens
Custard Apple	Asimina pygmaea
Southern Red Cedar	Juniperus silicicola
Ironwood	Carpinus carolinana
Paw Paw	Asimina triloba
Slash Pine	Pinus elliotti
Spikegrass	Chasmanthium sp.

Sources: Florida Game and Fresh Water Fish Commission (1976a), USDA Forest Service (1976).

A-7. Amphibians

Common Name	Scientific Name
Bronze Frog	Rana clamitans clamitans
River Frog	Rana heckscheri
Gray Tree Frog	Hyla chrysoscelis
Southern Leopard Frog	Rana pipens sphenocephala
Green Tree Frog	Hyla cinerea
Squirrel Tree Frog	Hyla squirella
Lesser Siren	Siren intermedia
Southern Toad	Bufo terrestris
Greater Siren	Siren lacertina
Two-Toed Amphiuma	Amphiuma means
Southern Dusky Salamander	Desmognathus auriculatus
Pig Frog	Rana grylio
Peninsula Newt	Notophthalmus viridescens piaropicola
Slimy Salamander	Plethodon glutinosus
Dwarf Salamander	Manculus quadridigitatus
Barking Tree Frog	Hyla gratiosa
Greenhouse Frog	Eleutherodactylus planirostris
Florida Cricket Frog	Acris crepitans crepitans
Little Grass Frog	Limnaoedus ocularis
Southern Spring Peeper	Hyla crucifer bartramiana
Narrow-Striped Dwarf Siren	Pseudobranchus striatus axanthus
Bullfrog	Rana catesbeiana
Eastern Narrow-Mouthed Toad	Gastrophyrne carolinensis
Pinewoods Tree Frog	Hyla femoralis
Florida Chorus Frog	Pseudoacris nigrita nigrita
Oak Toad	Bufo quercicus
Striped Newt	Notophthalmus perstriatus

Sources: Florida Game and Fresh Water Fish Commission (1976a), Stevenson (1976).

A-8. Reptiles

Common Name	Scientific Name
Florida Cottonmouth	Agkistrodon piscivorus conanii
Striped Mud Turtle	Kinosternon bauri palmarum
Yellow Rat Snake	Elaphe obsoleta quadrivittata
Broad-Headed Skink	Eumeces laticeps
Eastern Mud Snake	Farancia abacura
Green Anole	Anolis carolinensis
Florida Banded Water Snake	Natrix fasciata fasciata
Brown Water Snake	Natrix taxispilota
American Alligator	Alligator mississippiensis
Ground Skink	Scinella lateralis
Southern Ringneck Snake	Diadophis punctatus punctatus
Scarlet King Snake	Lampropeltis triangulum
Florida Box Turtle	Terrapene carolina
Southern Black Racer	Coluber constrictor priapus
Yellow Lipped Snake	Rhadinaea flavilata
Rough Earth Snake	Virginia striatula
Eastern Glass Lizard	Ophisaurus ventralis
Stinkpot Turtle	Sternothaerus odoratus
Five-Lined Skink	Eumeces fasciatus
Peninsula Cooter	Chrysemys floridana floridana
Eastern Indigo Snake	Drymarchon corais couperi
Florida Black Swamp Snake	Seminatrix pygaea pygaea
Dusky Pigmy Rattlesnake	Sistrurus miliarius
Eastern Diamondback Rattlesnake	Crotalus adamanteus
Eastern Coral Snake	Micrurus fulvius
Eastern Fence Lizard	Sceloporus undulatus
Florida Mud Turtle	Kinosternon subrubrum steindachneri
Florida King Snake	Lampropeltis getulus getulus
Florida Brown Snake	Storeria dekayi victa
Striped Swamp Snake	Regina alleni
Florida Snapping Turtle	Chelydra serpentina
Florida Red-Bellied Turtle	Chrysemys nelsoni
Florida Softshell Turtle	Trionyx ferox
Loggerhead Musk Turtle	Sternotherus minor minor
Eastern Rainbow Snake	Farancia erytrogramma erytrogramma

Sources: Florida Game and Fresh Water Fish Commission (1976a), Stevenson (1976).

A-9. Birds (page 1 of 2)

Common Name	Scientific Name
Pileated Woodpecker	Dryocopus pileatus
Prothonotary Warbler	Protonotaria citrea
Limpkin	Aramus guarauna
Acadian Flycatcher	Empidonax virescens
Wood Duck	Aix sponsa
Great Blue Heron	Ardea herodias
Yellow-Billed Cuckoo	Coccyzus americanus
Great Egret	Casmerodius albus
White Ibis	Eudocimus albus
Belted Kingfisher	Megaceryle alcyon
Anhinga	Anhinga anhinga
Red-Eyed Vireo	Vireo olivaceus
Carolina Wren	Thryothorus ludovicianus
Tufted Titmouse	Parus bicolor
Turkey	Meleagris gallopavo
Red-Bellied Woodpecker	Centurus carolinus
Cardinal	Cardinalis cardinalis
Great-Creasted Flycatcher	Myiarchus crinitus
Little Blue Heron	Egretta caerulea
Common Grackle	Quiscalus quiscula
Green Heron	Butorides virescens
Common Crow	Corvus brachyrhynchos
Downy Woodpecker	Dendrocopos pubescens
Red-Winged Blackbird	Agelaius phoeniceus
Blue Jay	Cyanocitta cristata
Yellow-Throated Vireo	Vireo flavifrons
Common Gallinule	Gallinula chloropus
Black Vulture	Coragyps atratus
Turkey Vulture	Cathartes aura
Cattle Egret	Bubulcus ibis
Summer Tanager	Piranga rubra
Brown Thrasher	Taxostoma rufum
Snowy Egret	Egretta thula
Louisiana Heron	Egretta tricolor
Mockingbird	Mimus polyglottos
Carolina Chickadee	Parus carolinensis
Osprey	Pandion haliaetus
Purple Gallinule	Porphyrula martinica
Bald Eagle	Haliaeetus leucocephalus
Swallow-Tail Kite	Elanoides forficatus
Eastern Phoebe	Sayornis phoebe
American Robin	Turdus migratorius

A-9. Birds (page 2 of 2)

Common Name	Scientific Name
Black-And-White Warbler	Mniotilta varis
Yellow-Bellied Sapsucker	Sphyrapicus varius
Cedar Waxwing	Bombycilla cedorum
Ruby-Crowned Kinglet	Regulus calendula
White-Eyed Vireo	Vireo griseus
Northern Parula Warbler	Parula americana
Yellow-Rumped Warbler	Dendroica coronata
Pine Warbler	Dendroica pinus
Yellow-Throated Warbler	Dendroica dominica
Red-Tailed Hawk	Buteo jamaicensis
Red-Shouldered Hawk	Buteo lineatus
Sandhill Crane	Grus canadensis
Killdeer	Charadrius vociferus
Red-Cockaded Woodpecker	Dendrocopos borealis
Black-Crowned Night Heron	Nycticorax nycticorax
Yellow-Crowned Night Heron	Nyctamassa violacep

Sources: Florida Game and Fresh Water Fish Commission (1976a), Stevenson (1976).

A-10. Mammals

Common Name	Scientific Name
Southern Myotis	Myotis austroriparius
Evening Bat	Nycticecius humeralis
Seminole Bat	Lasiurus seminolus
Red Bat	Lasiurus borealis borealis
Raccoon	Procyon lotor
River Otter	Lutra canadensis
Virginia Opossum	Didelphis marsupialis pigra
Eastern Piperstrelle	Pipistrella subflavus
Hoary Bat	Lasiurus cinerus cinerus
Grey Squirrel	Sciurus carolinensis
Southern Flying Squirrel	Glaucomys volans
Cotton Mouse	Peromyscus gossypinus
White-Tailed Deer	Odocoileus virginianus
Eastern Wood Rat	Neotoma floridana
Armadillo	Dasypus novemcinctus
Bobcat	Lynx rufus floridanus
Marsh Rabbit	Sylvilagus palustris
Wild Hog	Sus scrofa
Grey Fox	Urocyon cinereoargentes
Fox Squirrel	Sciurus niger
Striped Skunk	Mephitis mephitis
Black Bear	Ursus americanus floridanus
Short-Tailed Shrew	Blarina brevicauda
Southeastern Shrew	Sorex longirostris
Least Shrew	Cryptotis parva
Hispid Cotton Rat	Sigmodon hispidus
West Indian Manatee	Trichechus manatus latriostris

Sources: Florida Game and Fresh Water Fish Commission (1976a), Stevenson (1976).

CHAPTER 18-20
FLORIDA AQUATIC PRESERVES

Library References: Riparian rights to navigable waters, I. Henry Dean, 55 Fla. Bar J. 247, 250 (Mar., 1981).

18-20.001 Intent.

(1) All sovereignty lands within a preserve shall be managed primarily for the maintenance of essentially natural conditions, the propagation of fish and wildlife, and public recreation, including hunting and fishing where deemed appropriate by the board, and the managing agency.

(2) The aquatic preserves which are described in 73-534, Laws of Florida, Sections 258.39, 258.391, 258.392 and 258.393, Florida Statutes, future aquatic preserves established pursuant to general or special acts of the legislature, and in Rule 18-20.002, Florida Administrative Code, were established for the purpose of being preserved in an essentially natural or existing condition so that their aesthetic, biological and scientific values may endure for the enjoyment of future generations.

(3) The preserves shall be administered and managed in accordance with the following goals:

(a) To preserve, protect, and enhance these exceptional areas of sovereignty submerged lands by reasonable regulation of human activity within the preserves through the development and implementation of a comprehensive management program;

(b) To protect and enhance the waters of the preserves so that the public may continue to enjoy the traditional recreational uses of those waters such as swimming, boating, and fishing;

(c) To coordinate with federal, state, and local agencies to aid in carrying out the intent of the Legislature in creating the preserves;

(d) To use applicable federal, state, and local management programs, which are compatible with the intent and provisions of the act and these rules, and to assist in managing the preserves;

(e) To encourage the protection, enhancement or restoration of the biological, aesthetic, or scientific values of the preserves, including but not limited to the modification of existing manmade conditions toward their natural condition, and discourage activities which would degrade the aesthetic, biological, or scientific values, or the quality, or utility of a preserve, when reviewing applications, or when developing and implementing management plans for the preserves;

(f) To preserve, promote, and utilize indigenous life forms and habitats, including but not limited to: sponges, soft coral, hard corals, submerged grasses, mangroves, salt water marshes, fresh water marshes, mud flats, estuarine, aquatic, and marine reptiles, game and non-game fish species, estuarine, aquatic and marine invertebrates, estuarine, aquatic and marine mammals, birds, shellfish and mollusks;

(g) To acquire additional title interests in lands wherever such acquisitions would serve to protect or enhance the biological, aesthetic, or scientific values of the preserves;

(h) To maintain those beneficial hydrologic and biologic functions, the benefits of which accrue to the public at large.

(4) Nothing in these rules shall serve to eliminate or alter the requirements or authority of other governmental agencies, including counties and municipalities, to protect or enhance the preserves provided that such requirements or authority are not inconsistent with the act and this chapter.

Specific Authority 120.53, 258.43(1) FS. Law Implemented 258.35, 258.36, 258.37, 258.39, 258.393 FS. Chapter 80-280 Laws of Florida. History—New 2-23-81, Amended 8-7-85, Formerly 16Q-20.01, Transferred from 16Q-20.001.

18-20.002 Boundaries and Scope of the Preserves.

(1) These rules shall only apply to those sovereignty lands within a preserve, title to which is vested in the board, and those other lands for which the board has an appropriate instrument in writing, executed by the owner, authorizing the inclusion of specific lands in an aquatic preserve pursuant to Section 2(2) of Chapter 73-534, Laws of Florida, Sections 258.40(1) and 258.41(5), Florida Statutes, future aquatic preserves established through general or special acts of the legislature, and pursuant to Rule 18-20.008, Florida Administrative Code. Any publicly owned and maintained navigation channel authorized by the United States Congress, or other public works project authorized by the United States Congress, designed to improve or maintain commerce and navigation shall be deemed to be excluded from the

provisions of this chapter, pursuant to Subsection 258.40(2), Florida Statutes. Furthermore, all lands lost by avulsion or by artificially induced erosion shall be deemed excluded from the provisions of this chapter pursuant to Subsection 258.40(3), Florida Statutes.

(2) These rules do not apply to Boca Ciega Bay, Pinellas County or Biscayne Bay Aquatic Preserves.

(3) These rules are promulgated to clarify the responsibilities of the board in carrying out its land management functions as those functions apply within the preserves. Implementation and responsibility for environmental permitting of activities and water quality protection within the preserves are vested in the Department of Environmental Regulation. Since these rules are considered cumulative with other rules, a person planning an activity within the preserves should also consult the other applicable department rules (Chapter 18-21, Florida Administrative Code, for example) as well as the rules of the Department of Environmental Regulation.

(4) These rules shall not affect previous actions of the board concerning the issuance of any easement or lease; or any disclaimer concerning sovereignty lands.

(5) The intent and specific provisions expressed in 18-20.001(e) and (f) apply generally to all existing or future aquatic preserves within the scope of this chapter. Upon completion of a resource inventory and approval of a management plan for a preserve, pursuant to 18-20.013, the type designation and the resource sought to be preserved may be readdressed by the Board.

(6) For the purpose of clarification and interpretation, the legal description set forth as follows do not include any land which is expressly recognized as privately owned upland in a pre-existing recorded mean high water line settlement agreement between the board and a private owner or owners. Provided, however, in those instances wherein a settlement agreement was executed subsequent to the passage of the Florida Coastal Mapping Act, the determination of the mean high water line shall be in accordance with the provisions of such act.

(7) Persons interested in obtaining details of particular preserves should contact the Bureau of State Lands Management, Department of Natural Resources, 3900 Commonwealth Blvd., Tallahassee, FL 32303 (telephone 904-488-2297).

(a) The preserves are described as follows:

1. Fort Clinch State Park Aquatic Preserve, as described in the Official Records of Nassau County in Book 108, pages 343-346, and in Book 111, page 409.

2. Nassau River — St. Johns River Marshes Aquatic Preserve, as described in the Official Records of Duval County in Volume 3183, pages 547-552, and in the Official Records of Nassau County in Book 108, pages 232-237.

3. Pellicer Creek Aquatic Preserve, as described in the Official Records of St. Johns County in Book 181, pages 363-366, and in the Official Records of Flagler County in Book 33, pages 131-134.

4. Tomoka Marsh Aquatic Preserve, as described in the Official Records of Flagler County in Book 33, pages 135-138, and in the Official Records of Volusia County in Book 1244, pages 615-618.

5. Wekiva River Aquatic Preserve, as described in Section 258.39(30), F.S.

6. Mosquito Lagoon Aquatic Preserve, as described in the Official Records of Volusia County in Book 1244, pages 619-623, and in the Official Records of Brevard County in Book 1143, pages 190-194.

7. Banana River Aquatic Preserve, as described in the Official Records of Brevard County in Book 1143, pages 195-198, less those lands dedicated to the U. S. A. prior to the enactment of the act, until such time as the U. S. A. no longer wishes to maintain such lands for the purpose for which they were dedicated, at which time such lands would revert to the board, and be managed as part of the preserve.

8. Indian River — Malabar to Sebastian Aquatic Preserve, as described in the Official Records of Brevard County in Book 1143, pages 199-202, and in the Official Records of Indian River County in Book 368, pages 5-8.

9. Indian River — Vero Beach to Fort Pierce Aquatic Preserve, as described in the Official Records of Indian River County in Book 368, pages 9-12, and in the Official Records of St. Lucie County in Book 187, pages 1083-1086.

10. Jensen Beach to Jupiter Inlet Aquatic Preserve, as described in the Official Records of St. Lucie County in Book 218, pages 2865-2869.

11. North Fork, St. Lucie Aquatic Preserve, as described in the Official Records of Martin County in Book 337, pages 2159-2162, and in the Official Records of St. Lucie County in Book 201, pages 1676-1679.

12. Loxahatchee River — Lake Worth Creek Aquatic Preserve, as described in the Official Records of Martin County in Book 320, pages 193-196, and in the Official Records of Palm Beach County in Volume 1860, pages 806-809.

13. Biscayne Bay — Cape Florida to Monroe County Line Aquatic Preserve, as described in the Official Records of Dade County in Book 7055, pages 852-856, less, however, those lands and waters as described in Section 258.165, F. S., (Biscayne Bay Aquatic Preserve Act of 1974), and those lands and waters within the Biscayne National Park.

14. Lignumvitae Key Aquatic Preserve, as described in the Official Records of Monroe County in Book 502, pages 139-142.

15. Coupon Bight Aquatic Preserve, as described in the Official Records of Monroe County in Book 502, pages 143-146.

16. Cape Romano — Ten Thousand Islands Aquatic Preserve, as described in the Official Records of Collier County in Book 381, pages 298-301.

17. Rookery Bay Aquatic Preserve, as described in Section 258.39(31), FS.

18. Estero Bay Aquatic Preserve as described in Section 258.39(28), Florida Statutes.

19. Pine Island Sound Aquatic Preserve, as described in the Official Records of Lee County in Book 648, pages 732-736.

20. Matlacha Pass Aquatic Preserve, as described in the Official Records of Lee County in Book 800, pages 725-728.

21. Gasparilla Sound — Charlotte Harbor Aquatic Preserve, as described in Section 258.392, F.S.

22. Cape Haze Aquatic Preserve, as described in Section 258.39(29), F.S.

23. Cockroach Bay Aquatic Preserve, as described in Section 258.391, F.S.

24. St. Martins Marsh Aquatic Preserve, as described in the Official Records of Citrus County in Book 276, pages 238-241.

25. Alligator Harbor Aquatic Preserve, as described in the Official Records of Franklin County in Volume 98, pages 82-85.

26. Apalachicola Bay Aquatic Preserve, as described in the Official Records of Gulf County in Book 46, pages 77-81, and in the Official Records of Franklin County in Volume 98, pages 102-106.

27. St. Joseph Bay Aquatic Preserve, as described in the Official Records of Gulf County in Book 46, pages 73-76.

28. St. Andrews State Park Aquatic Preserve, as described in the Official Records of Bay County in Book 379, pages 547-550.

29. Rocky Bayou State Park Aquatic Preserve, as described in the Official Records of Okaloosa County in Book 593, pages 742-745.

30. Yellow River Marsh Aquatic Preserve, as described in the Official Records of Santa Rosa County in Book 206, pages 568-571.

31. Fort Pickens State Park Aquatic Preserve, as described in the Official Records of Santa Rosa County in Book 220, pages 60-63, in the Official Records of Escambia County in Book 518, pages 659-662, less the lands dedicated to the U. S. A. for the establishment of the Gulf Islands National Seashore prior to the enactment of the act, until such time as the U. S. A. no longer wishes to maintain such lands for the purpose for which they were dedicated, at which time such lands would revert to the board and be managed as part of the preserve.

32. For the purpose of this section the boundaries of the Lake Jackson Aquatic Preserve, shall be the body of water in Leon County known as Lake Jackson in Sections 1, 2, 3, 5, 10, 11 and 14, Township 1 North, Range 1 West and Sections 11, 12, 13, 14, 15, 21, 22, 23, 26, 27, 28, 29, 32, 33, 34, and 35, Township 2 North, Range 1 West lying below the ordinary high water line. Such lands shall include the submerged bottom lands and the water column upon such lands, as well as all publicly owned islands, within the boundaries of the preserve. Any privately held upland within the boundaries of the preserve shall be deemed to be excluded therefrom; provided that the Board may negotiate an arrangement with any such private upland owner by which such land may be included in the preserve.

33. Terra Ceia Aquatic Preserve, as described in Section 258.393, Florida Statutes.

34. Future aquatic preserves established pursuant to general or special acts of the legislature.

Specific Authority 120.53, 258.43(1) FS. Law Implemented 258.39, 258.391, 258.392, 258.393, 258.40, 258.41, 258.42, 258.43, 258.44, 258.45 FS. History—New 2-23-81, Amended 8-7-85, Formerly 16Q-20.02, Transferred from 16Q-20.002.

18-20.003 Definitions. When used in these rules, the following words shall have the indicated meaning unless the context clearly indicates otherwise:

(1) "Act" means the provisions of Section 258.35 through 258.46, F.S., the Florida Aquatic Preserve Act.

(2) "Activity" means any project and such other human action within the preserve requiring board approval for the use, sale, lease or transfer of interest in sovereignty lands or materials, or which may require a license from the Department of Environmental Regulation.

(3) "Aesthetic values" means scenic characteristics or amenities of the preserve in its essentially natural state or condition, and the maintenance thereof.

(4) "Applicant" means any person making application for a permit, license, conveyance of an interest in state owned lands or any other necessary form of governmental approval in order to perform an activity within the preserve.

(5) "Beneficial biological functions" means interactions between flora, fauna and physical or chemical attributes of the environment, which provide benefits that accrue to the public at large, including, but not limited to: nutrient, pesticide and heavy metal uptake; sediment retention; nutrient conversion to biomass; nutrient recycling and oxygenation.

(6) "Beneficial hydrological functions" means interactions between flora, fauna and physical geological or geographical attributes of the environment, which provide benefits that accrue to the public at large, including, but not limited to: retardation of storm water flow; storm water retention; and water storage, and periodical release;

(7) "Biological values" means the preservation and promotion of indigenous life forms and habitats including, but not limited to: sponges, soft corals, hard corals, submerged grasses, mangroves, saltwater marshes, fresh water marshes, mud flats, marine, estuarine, and aquatic reptiles, games and non-games fish species, marine, estuarine, and aquatic mammals, marine, estuarine, and aquatic invertebrates, birds and shellfish.

(8) "Board" means the Governor and Cabinet sitting as the Board of Trustees of the Internal Improvement Trust Fund.

(9) "Channel" means a trench, the bottom of which is normally covered entirely by water, with the upper edges of its sides normally below water.

(10) "Commercial, industrial and other revenue generating/income related docks" means docking facilities for an activity which produces income, through rental or any other means, or which serves as an accessory facility to other rental, commercial or industrial operations. It shall include, but not be limited to docking for: marinas, restaurants, hotels, motels, commercial fishing, shipping, boat or ship construction, repair, and sales.

(11) "Department" means the State of Florida Department of Natural Resources, as administrator for the board.

(12) "Division" means the Division of State Lands, which performs all staff duties and functions related to the administration of lands title to which is, or will be, vested in the board, pursuant to section 253.002, F.S.

(13) "Dock" means a fixed or floating structure, including moorings, used for the purpose of berthing buoyant vessels either temporarily or indefinitely.

(14) "Essentially natural condition" means those functions which support the continued existence or encourage the restoration of the diverse population of indigenous life forms and habitats to the extent they existed prior to the significant development adjacent to and within the preserve.

(15) "Extreme hardship" means a significant burden, unique to the applicant and not shared by property owners in the area. Self-imposed circumstances caused to any degree by actions of any person subsequent to the enactment of the Act shall not be construed as an extreme hardship. Extreme hardship under this act shall not be construed to include any hardship which arises in whole or in part from the effect of other federal, state or local laws, ordinances, rules or regulations. The term may be inherent in public projects which are shown to be a public necessity.

(16) "Fill" means materials from any source, deposited by any means onto sovereignty lands, either for the purpose of creating new uplands or for any other purpose, including spoiling of dredged materials. For the purpose of this rule, the placement of pilings or riprap shall not be considered to be filling.

(17) "Lease" means a conveyance of interest in lands, title to which is vested in the board, granted in accordance with specific terms set forth in writing.

(18) "Marina" means a small craft harbor complex used primarily for recreation.

(19) "Oil and gas transportation facilities" means those structures necessary for the movement of oil and gas from the production site to the consumer.

(20) "Person" means individuals, minors, partnerships, corporations, joint ventures, estates, trusts, syndicates, fiduciaries, firms, and all other associations and combinations, whether public or private, including governmental entities.

(21) "Pier" means a structure in, on, or over sovereignty lands, which is used by the public primarily for fishing, swimming, or viewing the preserve. A pier shall not include a dock.

(22) "Preserve" means any and all of those areas which are exceptional areas of sovereignty lands and the associated water body so designated in Section 258.39, 258.391, and 258.392, F.S., including all sovereignty lands, title to which is vested in the board, and such other lands as the board may acquire or approve for inclusion, and the water column over such lands, which have been set aside to be maintained in an essentially natural or existing condition of indigenous flora and fauna and their supporting habitat and the natural scenic qualities and amenities thereof.

(23) "Private residential single dock" means a dock which is used for private, recreational or leisure purposes for a single family residence, cottage or other such single dwelling unit and which is designed to moor no more than two boats.

(24) "Private residential multi-slip dock" means a docking facility which is used for private recreational or leisure purposes for multi-unit residential dwellings which shall include but is not limited to condominiums, townhouses, subdivisions and other such dwellings or residential areas and which is designed to moor three or more boats. Yacht clubs associated with residential developments, whose memberships or utilization of the docking facility requires some real property interest in the residential area, shall also be included.

(25) "Public interest" means demonstrable environmental, social, and economic benefits which would accrue to the public at large as a result of a proposed action, and which would clearly exceed all demonstrable environmental, social, and economic costs of the proposed action. In determining the public interest in a request for use, sale, lease, or transfer of interest in sovereignty lands or severance of materials from sovereignty lands, the board shall consider the ultimate project and purpose to be served by said use, sale, lease, or transfer of lands or materials.

(26) "Public navigation project" means a project primarily for the purpose of navigation which is authorized and funded by the United States Congress or by port authorities as defined by Section 315.02(2), F.S.

(27) "Public necessity" means the works or improvements required for the protection of the health and safety of the public, consistent with the Act and these rules, for which no other reasonable alternative exists.

(28) "Public utilities" means those services, provided by persons regulated by the Public Service Commission, or which are provided by rural cooperatives, municipalities, or other governmental agencies, including electricity, telephone, public water and wastewater services, and structures necessary for the provision of these services.

(29) "Quality of the preserve" means the degree of the biological, aesthetic and scientific values of the preserve necessary for present and future enjoyment of it in an essentially natural condition.

(30) "Resource management agreement" means a contractual agreement between the board and one

or more parties which does not create an interest in real property but merely authorizes conduct of certain management activities on lands held by the board.

(31) "Resource Protection Area (RPA) 1" — Areas within the aquatic preserves which have resources of the highest quality and condition for that area. These resources may include, but are not limited to corals; marine grassbeds; mangrove swamps; salt-water marsh; oyster bars; archaeological and historical sites; endangered or threatened species habitat; and, colonial water bird nesting sites.

(32) "Resource Protection Area 2" — Areas within the aquatic preserves which are in transition with either declining resource protection area 1 resources or new pioneering resources within resource protection area 3.

(33) "Resource Protection Area 3" — Areas within the aquatic preserve that are characterized by the absence of any significant natural resource attributes.

(34) "Riparian rights" means those rights incident to lands bordering upon navigable waters, as recognized by the courts of this state and common law.

(35) "Sale" means a conveyance of interest in lands, by the board, for consideration.

(36) "Scientific values" means the preservation and promotion of certain qualities or features which have scientific significance.

(37) "Shore protection structure" means a type of coastal construction designed to minimize the rate of erosion. Coastal construction includes any work or activity which is likely to have a material physical effect on existing coastal conditions or natural shore processes.

(38) "Sovereignty lands" means those lands including, but not limited to: tidal lands, islands, sandbars, shallow banks, and lands waterward of the ordinary or mean highwater line, to which the State of Florida acquired title on March 3, 1845, by virtue of statehood, and of which it has not since divested its title interest. For the purposes of this rule sovereignty lands shall include all submerged lands within the boundaries of the preserve, title to which is held by the board.

(39) "Spoil" means materials dredged from sovereignty lands which are redeposited or discarded by any means, onto either sovereignty lands or uplands.

(40) "Transfer" means the act of the board by which any interest in lands, including easements, other than sale or lease, is conveyed.

(41) "Utility of the preserve" means fitness of the preserve for the present and future enjoyment of its biological, aesthetic and scientific values, in an essentially natural condition.

(42) "Water dependent activity" means an activity which can only be conducted on, in, over, or adjacent to, water areas because the activity requires direct access to the water body or sovereignty lands for transportation, recreation, energy production or transmission, or source of water and where the use of the water or sovereignty lands is an integral part of the activity.

Specific Authority 258.43(1) FS. Law Implemented 258.37, 258.43(1) FS. History—New 2-25-81, Amended 8-7-85, Formerly 16Q-20.03, Transferred from 16Q-20.003.

18-20.004 Management Policies, Standards and Criteria. The following management policies, standards and criteria are supplemental to Chapter 18-21, Florida Administrative Code (Sovereignty Submerged Lands Management) and shall be utilized in determining whether to approve, approve with conditions or modifications or deny all requests for activities on sovereignty lands in aquatic preserves.

(1) GENERAL PROPRIETARY

(a) In determining whether to approve or deny any request the Board will evaluate each on a case-by-case basis and weigh any factors relevant under Chapter 253 and/or 258, Florida Statutes. The Board, acting as Trustees for all state-owned lands, reserves the right to approve, modify or reject any proposal.

(b) There shall be no further sale, lease or transfer of sovereignty lands except when such sale, lease or transfer is in the public interest (see Section 18-20.004(2) Public Interest Assessment Criteria).

(c) There shall be no construction of seawalls waterward of the mean or ordinary high water line, or filling waterward of the mean or ordinary high water line except in the case of public road and bridge projects where no reasonable alternative exists.

(d) There shall, in no case, be any dredging waterward of the mean or ordinary high water line for the sole or primary purpose of providing fill for any area landward of the mean or ordinary high water line.

(e) A lease, easement or consent of use may be authorized only for the following activities:

1. a public navigation project;

2. maintenance of an existing navigational channel;

3. installation or maintenance of approved navigational aids;

4. creation or maintenance of a commercial/industrial dock, pier or a marina;

5. creation or maintenance of private docks for reasonable ingress and egress of riparian owners;

6. minimum dredging for navigation channels attendant to docking facilities;

7. creation or maintenance of a shore protection structure;

8. installation or maintenance of oil and gas transportation facilities;

9. creation, maintenance, replacement or expansion of facilities required for the provision of public utilities; and

10. other activities which are a public necessity or which are necessary to enhance the quality or utility of the preserve and which are consistent with the act and this chapter.

(f) For activities listed in paragraphs 18-20.004(1)(e)1.—10. above, the activity shall be

designed so that the structure or structures to be built in, on or over sovereignty lands are limited to structures necessary to conduct water dependent activities.

(g) For activities listed in paragraphs 18-20.004(1)(e)7., 8., 9. and 10. above, it must be demonstrated that no other reasonable alternative exists which would allow the proposed activity to be constructed or undertaken outside the preserve.

(h) The use of state-owned lands for the purpose of providing private or public road access to islands where such access did not previously exist shall be prohibited. The use of state-owned lands for the purpose of providing private or public water supply to islands where such water supply did not previously exist shall be prohibited.

(i) Except for public navigation projects and maintenance dredging for existing channels and basins, any areas dredged to improve or create navigational access shall be incorporated into the preempted area of any required lease or be subject to the payment of a negotiated private easement fee.

(j) Private residential multi-slip docking facilities shall require a lease.

(k) Aquaculture and beach renourishment activities which comply with the standards of this rule chapter and Chapter 18-21, Florida Administrative Code, may be approved by the board, but only subsequent to a formal finding of compatibility with the purposes of Chapter 258, Florida Statutes, and this rule chapter.

(l) Other uses of the preserve, or human activity within the preserve, although not originally contemplated, may be approved by the board, but only subsequent to a formal finding of compatibility with the purposes of Chapter 258, Florida Statutes, and this rule chapter.

(2) PUBLIC INTEREST ASSESSMENT CRITERIA

In evaluating requests for the sale, lease or transfer of interest, a balancing test will be utilized to determine whether the social, economic and/or environmental benefits clearly exceed the costs.

(a) GENERAL BENEFIT/COST CRITERIA:

1. any benefits that are balanced against the costs of a particular project shall be related to the affected aquatic preserve;

2. in evaluating the benefits and costs of each request, specific consideration and weight shall be given to the quality and nature of the specific aquatic preserve. Projects in the less developed, more pristine aquatic preserves such as Apalachicola Bay shall be subject to a higher standard than the more developed urban aquatic preserves such as Boca Ciega Bay; and,

3. for projects in aquatic preserves with adopted management plans, consistency with the management plan will be weighed heavily when determining whether the project is in the public interest.

(b) BENEFIT CATEGORIES:

1. public access (public boat ramps, boatslips, etc.);

2. provide boating and marina services (repair, pumpout, etc.);

3 improve and enhance public health, safety, welfare, and law enforcement;

4. improved public land management;

5. improve and enhance public navigation;

6. improve and enhance water quality;

7. enhancement/restoration of natural habitat and functions; and

8. improve/protect endangered/threatened/unique species.

(c) COSTS:

1. reduced/degraded water quality;

2. reduced/degraded natural habitat and function;

3. destruction, harm or harassment of endangered or threatened species and habitat;

4. preemption of public use;

5. increasing navigational hazards and congestion;

6. reduced/degraded aesthetics; and

7. adverse cumulative impacts.

(d) EXAMPLES OF SPECIFIC BENEFITS:

1. donation of land, conservation easements, restrictive covenants or other title interests in or contiguous to the aquatic preserve which will protect or enhance the aquatic preserve;

2. providing access or facilities for public land management activities;

3. providing public access easements and/or facilities, such as beach access, boat ramps, etc.;

4. restoration/enhancement of altered habitat or natural functions, such as conversion of vertical bulkheads to riprap and/or vegetation for shoreline stabilization or re-establishment of shoreline or submerged vegetation;

5. improving fishery habitat through the establishment of artificial reefs or other such projects, where appropriate;

6. providing sewage pumpout facilities where normally not required, in particular, facilities open to the general public;

7. improvements to water quality such as removal of toxic sediments, increased flushing and circulation, etc.;

8. providing upland dry storage as an alternative to wetslip; and

9. marking navigation channels to avoid disruption of shallow water habitats.

(3) RESOURCE MANAGEMENT

(a) All proposed activities in aquatic preserves having management plans adopted by the Board must demonstrate that such activities are consistent with the management plan.

(b) No drilling of oil, gas or other such wells shall be allowed.

(c) Utility cables, pipes and other such structures shall be constructed and located in a manner that will cause minimal disturbance to submerged land resources such as oyster bars and submerged grass beds and do not interfere with traditional public uses.

(d) Spoil disposal within the preserves shall be strongly discouraged and may be approved only

structures shall be constructed and located in a manner that will cause minimal disturbance to submerged land resources such as oyster bars and submerged grass beds and do not interfere with traditional public uses.

(d) Spoil disposal within the preserves shall be strongly discouraged and may be approved only where the applicant has demonstrated that there is no other reasonable alternative and that activity may be beneficial to, or at a minimum, not harmful to the quality and utility of the preserve.

(4) RIPARIAN RIGHTS

(a) None of the provisions of this rule shall be implemented in a manner that would unreasonably infringe upon the traditional, common law and statutory riparian rights of upland riparian property owners adjacent to sovereignty lands.

(b) The evaluation and determination of the reasonable riparian rights of ingress and egress for private, residential multi-slip docks shall be based upon the number of linear feet of riparian shoreline.

(c) For the purposes of this rule, a private, residential, single docking facility which meets all the requirements of Rule 18-20.004(5) shall be deemed to meet the public interest requirements of Rule 18-20.004(1)(b), Florida Administrative Code. However, the applicants for such docking facilities must apply for such consent and must meet all of the requirements and standards of this rule chapter.

(5) STANDARDS AND CRITERIA FOR DOCKING FACILITIES

(a) All docking facilities, whether for a single or multi-slip residential or commercial, shall be subject to the following standards and criteria:

1. no dock shall extend waterward of the mean or ordinary high water line more than 500 feet or 20 percent of the width of the waterbody at that particular location whichever is less;

2. certain docks may fall within areas of special or unique importance. These areas may be of significant biological, scientific, historic and/or aesthetic value and require special management considerations. Modifications may be more restrictive than the normally accepted criteria. Such modifications shall be determined on a case-by-case analysis, and may include, but shall not be limited to changes in location, configuration, length, width and height;

3. the number, lengths, drafts and types of vessels allowed to utilize the proposed facility may also be stipulated; and

4. where local governments have more stringent standards and criteria for docking facilities, the more stringent standards for the protection and enhancement of the aquatic preserve shall prevail.

(b) Private residential single docks shall conform to the following specific design standards and criteria:

1. any main access dock shall be limited to a maximum width of four (4) feet;

2. the dock decking design and construction will insure maximum light penetration, with full consideration of safety and practicality;

3. the dock will extend out from the shoreline no further than to a maximum depth of minus four (− 4) feet (mean low water);

4. when the water depth is minus four (− 4) feet (mean low water) at an existing bulkhead the maximum dock length from the bulkhead shall be 25 feet, subject to modifications accommodating shoreline vegetation overhang;

5. wave break devices, when necessary, shall be designed to allow for maximum water circulation and shall be built in such a manner as to be part of the dock structure;

6. terminal platform size shall be no more than 160 square feet; and

7. dredging to obtain navigable water depths in conjunction with private residential, single dock applications is strongly discouraged.

(c) Private residential multi-slip docks shall conform to the following specific design standards and criteria:

1. the area of sovereignty, submerged land preempted by the docking facility shall not exceed the square footage amounting to ten times the riparian waterfront footage of the affected waterbody of the applicant, or the square footage attendant to providing a single dock in accordance with the criteria for private residential single docks, whichever is greater. A conservation easement or other such use restriction acceptable to the Board must be placed on the riparian shoreline, used for the calculation of the 10:1 threshold, to conserve and protect shoreline resources and subordinate/waive any further riparian rights of ingress and egress for additional docking facilities;

2. docking facilities and access channels shall be prohibited in Resource Protection Area 1 or 2, except as allowed pursuant to Section 258.42(3)(c)1., Florida Statutes, while dredging in Resource Protection Area 3 shall be strongly discouraged;

3. docking facilities shall only be approved in locations having adequate existing water depths in the boat mooring, turning basin, access channels, and other such areas which will accommodate the proposed boat use in order to insure that a minimum of one foot clearance is provided between the deepest draft of a vessel and the bottom at mean low water;

4. main access docks and connecting or cross walks shall not exceed six (6) feet in width;

5. terminal platforms shall not exceed eight (8) feet in width;

6. finger piers shall not exceed three (3) feet in width, and 25 feet in length;

7. pilings may be utilized as required to provide adequate mooring capabilities; and

8. the following provisions of Rule 18-20.004(5)(d) shall also apply to private residential multi-slip docks.

(d) Commercial, industrial and other revenue generating/income related docking facilities shall conform to the following specific design standards and criteria:

1. docking facilities shall only be located in or near areas with good circulation, flushing and adequate water depths;

2. docking facilities and access channels shall be prohibited in Resource Protection Area 1 or 2, except as allowed pursuant to Sections 258.42(3)(e)1., Florida Statutes; while dredging in Resource Protection Area 3 shall be strongly discouraged;

3. the docking facilities shall not be located in Resource Protection Area 1 or 2; however, main access docks may be allowed to pass through Resource Protection Area 1 or 2, that are located along the shoreline, to reach an acceptable Resource Protection Area 3, provided that such crossing will generate minimal environmental impact;

4. beginning July 1, 1986 new docking facilities may obtain a lease only where the local governments have an adopted marina plan and/or policies dealing with the siting of commercial/industrial and private, residential, multi-slip docking facilities in their local government comprehensive plan;

5. the siting of the docking facilities shall also take into account the access of the boat traffic to avoid marine grassbeds or other aquatic resources in the surrounding areas;

6. the siting of new facilities within the preserve shall be secondary to the expansions of existing facilities within the preserve when such expansion is consistent with the other standards;

7. the location of new facilities and expansion of existing facilities shall consider the use of upland dry storage as an alternative to multiple wet-slip docking;

8. marina siting will be coordinated with local governments to insure consistency with all local plans and ordinances;

9. marinas shall not be sited within state designated manatee sanctuaries; and

10. in any areas with known manatee concentrations, manatee warning/notice and/or speed limit signs shall be erected at the marina and/or ingress and egress channels, according to Florida Marine Patrol specifications.

(c) Exceptions to the standards and criteria listed in Rule 18-20.004(5), Florida Administrative Code, may be considered, but only upon demonstration by the applicant that such exceptions are necessary to insure reasonable riparian ingress and egress.

(6) MANAGEMENT AGREEMENTS

The board may enter into management agreements with local agencies for the administration and enforcement of standards and criteria for private residential single docks.

(7) In addition to the policies, standards and criteria delineated in subsections (1) through (6), the provisions of the following management plans apply to specific aquatic preserves and are incorporated herein by reference. Where regulatory criteria in 18-20, F. A. C., may differ with specific policies in the management plans listed herein, the general rule criteria shall prevail.

	Date Adopted
Alligator Harbor	September 23, 1986
Banana River	September 17, 1985
Cockroach Bay	April 21, 1987
Estero Bay	September 6, 1983
Charlotte Harbor (Cape Haze, Gasparilla Sound-Charlotte Harbor, Matlacha Pass and Pine Island Sound)	May 18, 1983
Indian River-Malabar to Vero Beach	January 21, 1986
Indian River Lagoon (Vero Beach to Fort Pierce and Jensen Beach to Jupiter Inlet)	January 22, 1985
Loxahatchee River-Lake Worth Creek	June 12, 1984
Nassau River-St. Johns River Marshes and Fort Clinch State Park	April 22, 1986
North Fork of the St. Lucie River	May 22, 1984
St. Joseph Bay	June 2, 1987
St. Martins Marsh	September 9, 1987
Terra Ceia	April 21, 1987
Wekiva River	August 25, 1987

Specific Authority 258.43(1) FS. Law Implemented 258.41, 258.42, 258.43(1), 258.44 FS. History—New 2-25-81, Amended 8-7-85, Formerly 16Q-20.004, Transferred from 16Q-20.004, Amended 9-4-88.

18-20.005 Uses, Sales, Leases, or Transfer of Interests in Lands, or Materials, Held by the Board.

Specific Authority 258.43(1) FS. Law Implemented 253.02, 253.12, 258.42 FS. History—New 2-25-81, Repealed 8-7-85, Formerly 16Q-20.05, Transferred from 16Q-20.005.

18-20.006 Cumulative Impacts. In evaluating applications for activities within the preserves or which may impact the preserves, the department recognizes that, while a particular alteration of the preserve may constitute a minor change, the cumulative effect of numerous such changes often results in major impairments to the resources of the preserve. Therefore, the department shall evaluate a particular site for which the activity is proposed with the recognition that the activity may, in conjunction with other activities adversely affect the preserve which is part of a complete and interrelated system. The impact of a proposed activity shall be considered in light of its cumulative impact on the preserve's natural system. The department shall include as a part of its evaluation of an activity:

(1) The number and extent of similar human actions within the preserve which have previously affected or are likely to affect the preserve, whether considered by the department under its current authority or which existed prior to or since the enactment of the Act; and

(2) The similar activities within the preserve

which are currently under consideration by the department; and

(3) Direct and indirect effects upon the preserve and adjacent preserves, if applicable, which may reasonably be expected to result from the activity; and

(4) The extent to which the activity is consistent with management plans for the preserve, when developed; and

(5) The extent to which the activity is permissible within the preserve in accordance with comprehensive plans adopted by affected local governments, pursuant to section 163.3161, F.S., and other applicable plans adopted by local, state, and federal governmental agencies;

(6) The extent to which the loss of beneficial hydrologic and biologic functions would adversely impact the quality or utility of the preserve; and

(7) The extent to which mitigation measures may compensate for adverse impacts.

Specific Authority 258.43(1) FS. Law Implemented 258.36, 258.43, 258.44 FS. History—New 2-25-81, Formerly 16Q-20.06, Transferred from 16Q-20.006.

18-20.007 Protection of Riparian Rights.

Specific Authority 258.43(1) FS. Law Implemented 258.123, 258.124(8), 258.44 FS. History—New 2-25-81, Repealed 6-7-85, Formerly 16Q-20.07, Transferred from 16Q-20.007.

18-20.008 Inclusion of Lands, Title to Which Is Not Vested in the Board, in a Preserve.

(1) Lands and water bottoms which are within designated aquatic preserve boundaries, or adjacent thereto and which are owned by other governmental agencies, may be included in an aquatic preserve upon specific authorization for inclusion by an appropriate instrument in writing executed by the agency.

(2) Lands and water bottoms which are within designated aquatic preserve boundaries or adjacent thereto, and which are in private ownership, may be included in an aquatic preserve upon specific authorization for inclusion by an appropriate instrument in writing executed by the owner.

(3) The appropriate instrument shall be either a dedication in perpetuity, or a lease. Such lease shall contain the following conditions:

(a) The term of the lease shall be for a minimum period of ten years.

(b) The board shall have the power and duty to enforce the provisions of each lease agreement, and shall additionally have the power to terminate any lease if the termination is in the best interest of the aquatic preserve system, and shall have the power to include such lands in any agreement for management of such lands.

(c) The board shall pay no more than $1 per year for any such lease.

Specific Authority 258.43(1) FS. Law Implemented 258.40, 258.41 FS. History—New 2-25-81, Formerly 16Q-20.08, Transferred from 16Q-20.008.

18-20.009 Establishment or Expansion of Aquatic Preserves.

(1) The board may expand existing preserves or establish additional areas to be included in the aquatic preserve system, subject to confirmation by the legislature.

(2) The board may, after public notice and public hearing in the county or counties in which the proposed expanded or new preserve is to be located, adopt a resolution formally setting aside such areas to be included in the system.

(3) The resolution setting aside an aquatic preserve area shall include:

(a) A legal description of the area to be included. A map depicting the legal description shall also be attached.

(b) The designation of the type of aquatic preserve.

(c) A general statement of what is sought to be preserved.

(d) A statement that the area established as a preserve shall be subject to the management criteria and directives of this chapter.

(e) A directive to develop a natural resource inventory and a management plan for the area being established as an aquatic preserve.

(4) Within 30 days of the designation and establishment of an aquatic preserve, the board shall record in the public records of the county or counties in which the preserve is located a legal description of the preserve.

Specific Authority 258.43(1) FS. Law Implemented 258.41 FS. History—New 2-25-81, Formerly 16Q-20.09, Transferred from 16Q-20.009.

18-20.010 Exchange of Lands. The board in its discretion may exchange lands for the benefit of the preserve, provided that:

(1) In no case shall an exchange result in any land or water area being withdrawn from the preserve; and

(2) Exchanges shall be in the public interest and shall maintain or enhance the quality or utility of the preserve.

Specific Authority 258.43(1) FS. Law Implemented 258.41(5), 258.42(1) FS. History—New 2-25-81, Formerly 16A-20.10, Transferred from 16Q-20.010.

18-20.011 Gifts of Lands. The board in its discretion may accept any gifts of lands or interests in lands within or contiguous to the preserve to maintain or enhance the quality and utility of the preserve.

Specific Authority 258.43(1) FS. Law Implemented 258.42(5) FS. History—New 2-25-81, Formerly 16Q-20.11, Transferred from 16Q-20.011.

18-20.012 Protection of Indigenous Life Forms. The taking of indigenous life forms for sale or commercial use is prohibited, except that this prohibition shall not extend to the commercial taking of fin fish, crustacea or mollusks, except as prohibited under applicable laws, rules or regulations. Members of the public may exercise their rights to fish, so long as not contrary to other statutory and regulatory provisions controlling such activities.

Specific Authority 258.43(1) FS. Law Implemented 258.43(1) FS. History—New 2-25-81, Formerly 16Q-20.12, Transferred from 16Q-20.012.

18-20.013 Development of Resource Inventories and Management Plans for Preserves.

(1) The board authorizes and directs the division to develop a resource inventory and management plan for each preserve.

(2) The division may perform the work to develop the inventories and plans, or may enter into agreements with other persons to perform the work. In either case, all work performed shall be subject to board approval.

Specific Authority 258.43(1) FS. Law Implemented 253.03(7), 253.03(8) FS. History—New 2-25-81, Amended 6-7-85, Formerly 16Q-20.13, Transferred from 16Q-20.013.

18-20.014 Enforcement. The rules shall be enforced as provided in Section 258.46.

Specific Authority 258.43(1) FS. Law Implemented 258.46 FS. History—New 2-25-81, Formerly 16Q-20.14, Transferred from 16Q-20.014.

18-20.015 Application Form.

Specific Authority 253.43(1) FS. Law Implemented 258.43 FS. History—New 2-25-81, Repealed 6-7-85, Formerly 16Q-20.15, Transferred from 16Q-20.015.

18-20.016 Coordination with Other Governmental Agencies. Where a Department of Environmental Regulation permit is required for activities on sovereignty lands the department will coordinate with the Department of Environmental Regulation to obtain a copy of the joint Department of Army/Florida Department of Environmental Regulation permit application and the biological survey. The information contained in the joint permit application and biological assessment shall be considered by the department in preparing its staff recommendations to the board. The board may also consider the reports of other governmental agencies that have related management or permitting responsibilities regarding the proposed activity.

Specific Authority 253.43(1) FS. Law Implemented 258.43 FS. History—New 2-25-81, Formerly 16Q-20.16, Transferred from 16Q-20.016.

18-20.017 Lake Jackson Aquatic Preserve. In addition to the provisions of Rules 18-20.001 through 18-20.016, the following requirements shall also apply to all proposed activities within the Lake Jackson Aquatic Preserve. If any provisions of this Rule are in conflict with any provisions of Rules 18-20.001 through 18-20.016 or Chapter 73-534, Laws of Florida, the stronger provision for the protection or enhancement of the aquatic preserve shall prevail.

(1) No further sale, transfer or lease of sovereignty lands in the preserve shall be approved or consummated by the Board, except upon a showing of extreme hardship on the part of the applicant or when the board shall determine such sale, transfer or lease to be in the public interest.

(2) No further dredging or filling of sovereignty lands of the preserve shall be approved or tolerated by the Board of Trustees except:

(a) Such minimum dredging and spoiling as may be authorized for public navigation projects or for preservation of the lake according to the expressed intent of Chapter 73-534, Laws of Florida; and

(b) Such other alteration of physical conditions as may be necessary to enhance the quality or utility of the preserve.

(3) There shall be no drilling of wells, excavation for shell or minerals, and no erection of structures (other than docks), within the preserve, unless such activity is associated with activity authorized by Chapter 73-534, Laws of Florida.

(4) The Board shall not approve the relocations of bulkhead lines within the preserve.

(5) Notwithstanding other provisions of this act, the board may, respecting lands lying within the Lake Jackson basin:

(a) Enter into agreements for and establish lines delineating sovereignty and privately owned lands;

(b) Enter into agreements for the exchange and exchange sovereignty lands for privately owned lands;

(c) Accept gifts of land within or contiguous to the preserve.

Specific Authority 258.39(26) FS. Law Implemented 258.39(26), 258.43 FS. History—New 6-7-85, Formerly 16Q-20.017, Transferred from 16Q-20.017.